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BT gets US satellite go-ahead

by Donald Kennett and *Maggie McLening*

BRITISH Telecom's plans for sending transatlantic business data by satellite last week got the go-ahead in the US as BT set up its own joint project for the North Sea.

Satellite Business Systems, the US company set up by IBM, Comsat and Aetna Insurance to provide high-speed digital business communications services, had its plans to link to the UK approved by the US regulatory body, the Federal Communications Commission.

And British Telecom and oil company Amoco set up a joint project in satellite communication between the mainland and an oil rig in the North Sea which will carry voice and data between Fraserburgh, Scotland, and Amoco's Montrose Alpha platform for a three-month trial period.

A British Telecom spokesman said the US approval meant it should be offering leased circuits early next year for digital transmission at speeds from 2.4 Kbits per second to 56 Kbps and for analogue video conferencing.

The links will operate via the international satellite Intelsat V and customers at the UK end will be connected by landlines to BT's large ground stations, while companies at the US end can have their own roof-mounted small dish antennae. Access via the public telephone network will be allowed at one end only.

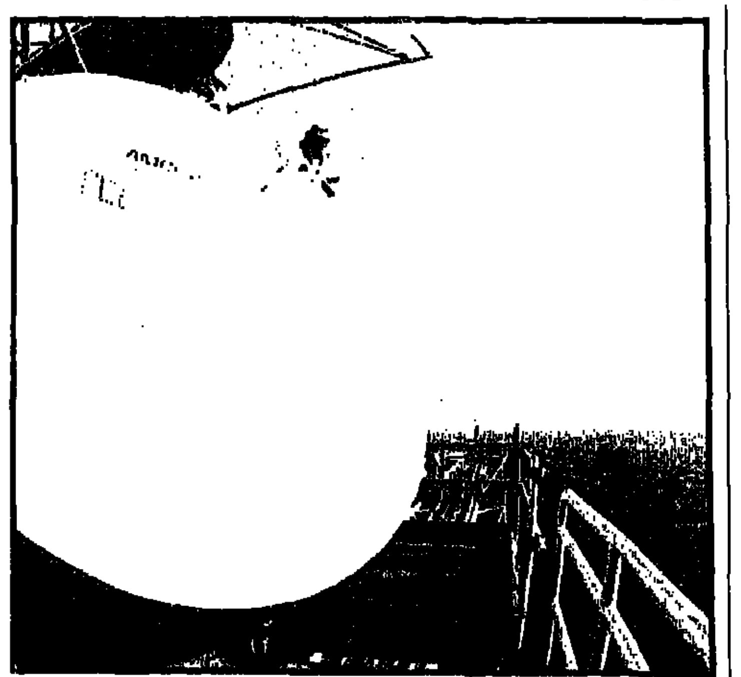
SBS is now permitted to operate as an international carrier to any country it can reach agreement with. The UK is first and other discussions are still confidential.

In the business plan SBS submitted to the FCC nine months ago, its best estimates on the value of the overseas business were $899,000 turnover in the first year, $4 million in the second and $7.8 million in the third.

Of that, high-speed services with data rates of 1.5 Mbps (the US preferred speed) and two Mbps (the European preferred speed) were expected to contribute nothing in the first year, $1.3 million in the second and $2.9 million in the third year of business.

SBS' business has failed to achieve the growth predicted four years ago, when it was expected to be profitable by the end of 1983, but it is now expectd to become profitable during 1984.

In the North Sea, Amoco will have six telephone lines for business use connected to the public telephone network throughout the trials, and a mixed speech and message circuit with a link to a telegraph message switcher for access to the UK telex network.



BT/Amoco trial satellite aerial on an oil rig carries voice and data.

FBI alleges Soviet link in Racal-Milgo theft conspiracy

by Howard Karten

RACAL-MILGO Information Systems Inc, a US subsidiary of Racal Electronics of the UK, was the target of a recent conspiracy to commit theft, according to FBI agents in the bureau's Pittsburgh, Pennsylvania office.

The FBI last week arrested three men, charging that they operated a steal-to-order ring that had planned to steal some equipment from Racal-Milgo's Huntington Beach, California warehouse.

According to FBI special agent Jeff Kimball, a Russian-speaking informant approached the bureau in late June with information that the three alleged conspirators sought to sell the hardware outside the country. The FBI began an undercover operation in which it allowed the three men to believe that its agent was either a Soviet himself, or was acting on behalf of the Soviets.

The *trio were allegedly going to* steal some $3 million worth of modems and sell them to the Soviets for $1 million. FBI officials said they did not know how many modems were involved, but one figure that appeared in a newspaper account was 500 units. That would place the average cost per delivered modem at $4,000, or $6,000 at list price.

According to the FBI, the three men involved were Anthony David, Jr, a regional service manager with Racal-Milgo in Huntington Beach, California; David's uncle, Matthew M. David of Pennsylvania; and Floyd Edmonds, also of Pennsylvania. Edmonds operates a trucking firm, and it was allegedly his trucks or his firm that would have moved the hot modems.

Special agent Kimball said the FBI undercover man met with the conspirators, who showed the agent a sample of the merchandise. When the conspirators accepted the proffered front money, they were arrested, and no modems were actually stolen.

The three men now face federal *charges of conspiracy* to commit grand theft and conspiracy to transfer stolen merchandise across State lines.

All three men are now out on bail pending trial.

GLOVER . . . "A major component in our office integration strategy . . ."

£5m cash for AES Data UK

by Maggie McLening

WORD and information processing supplier AES Data (UK) is to get a £5 million cash injection from its Canadian parent, despite a 62% increase in orders for the first half of 1982. The increase is valued at about £5.2 million.

An official statement from the company says that the extra money is to be invested in continuing expansion and the development of new market segments, but marketing director Derek Groves hinted that an AES local area network could be on the way.

"I have to be a bit cagey at the moment, because we don't want a formal announcement at this stage, but there is a new product coming shortly which will begin to finalise our local network," he said. "Although the new product will give better ways of communicating within our own equipment, it will also provide gateways through to other people's."

Ron Glover, managing director, elaborated further on the new product, to be known as the Work Support System.

"It will provide administrative support, decision support, filing, electronic mail and access to wider networks," he said. "It will also be a major component in our office integration strategy and will add considerable value to our existing word processing products, all of which will be compatible with and have access to this new Work Group Support System."

AES is one of the fastest expanding companies supplying standalone, screen-based word processors, and its sales worldwide rose to $173 million in 1981, a jump of 44% on the previous year. In 1981 it had four sales and support centres in the UK with a total of 100 employees, but this had risen to seven centres and 250 staff by the beginning of 1982.

"To some extent, the extra cash will go towards consolidating that expansion," said Groves. "We would certainly be doing well if we were able to achieve that sort of increase in business again this year."

Sales of AES equipment leapt by 66% in the UK in 1981, and were approaching the £8 million mark.

LINE NOISE

Rising from the ashes

WHILE the future of bankrupt Modular Technology hangs in the balance, its founder John McNulty, long a delight to Compec-goers, is preparing a new line of products. McNulty made his name by offering datacommunications users slick ways around the British Telecom monopoly, and with his eye-catching stunts. Modular Technology sold private-enterprise modems and other data communications kit including a laser system, but not in enough quantities to stop creditors pulling the plug last month when the company ran out of cash. McNulty and his team declared they would continue working, and the remains of the company still awaits a buyer. McNulty is now working from home on a line of products which will put him back in the same business, but is cagey about details. "Now is not a good time to talk about it," he said. "I'm sitting with lots of pieces of machine in my lap and they need to be put together."

IT seems that everyone who is anyone in the IBM guessing game is predicting when Big Blue'll launch the Personal Computer over here, but the only hard information we have is one of IBM's publicity people recently spent six weeks in the US, at IBM's Boca Raton plant in Florida. And where is the PC being made? Right! Further up the production line, IBM continues to remain mum about the IBM 36, but sources close to the company maintain that it will be revealed in first or second quarter '83. The machine is most likely to be an extension of the 34 rather than a downgrade 38. It is reckoned the IBM36 will have four times the capacity and three times the speed of the 34.

HIGH flying micro maker Altos Computer systems is expected to go public in the next three weeks. Set up in the US in 1977, Altos is currently privately owned by its Yorkshire-born president David Jackson. Sales in the last financial year were nearly $54 million.

DEC to support Unix

DEC "intends to get into Unix business in earnest," said a source at Digital Equipment Corp, in an exclusive interview.

This follows DEC's June announcement of VNX, a "combination of the VMS operating system from DEC and Unix-like enhancements for the VAX." The trend within DEC toward supporting Unix, the popular operating system from Bell Labs, has been marked by several milestones:

- Formation of Unix special interest groups within DECUS, the DEC users' group;
- Formation of the Unix Engineering group.
- Announcement that DEC will provide free of charge Unix device drivers for DEC peripherals;
- VNX, announced in June, which makes VMS look like Unix to VNX users.

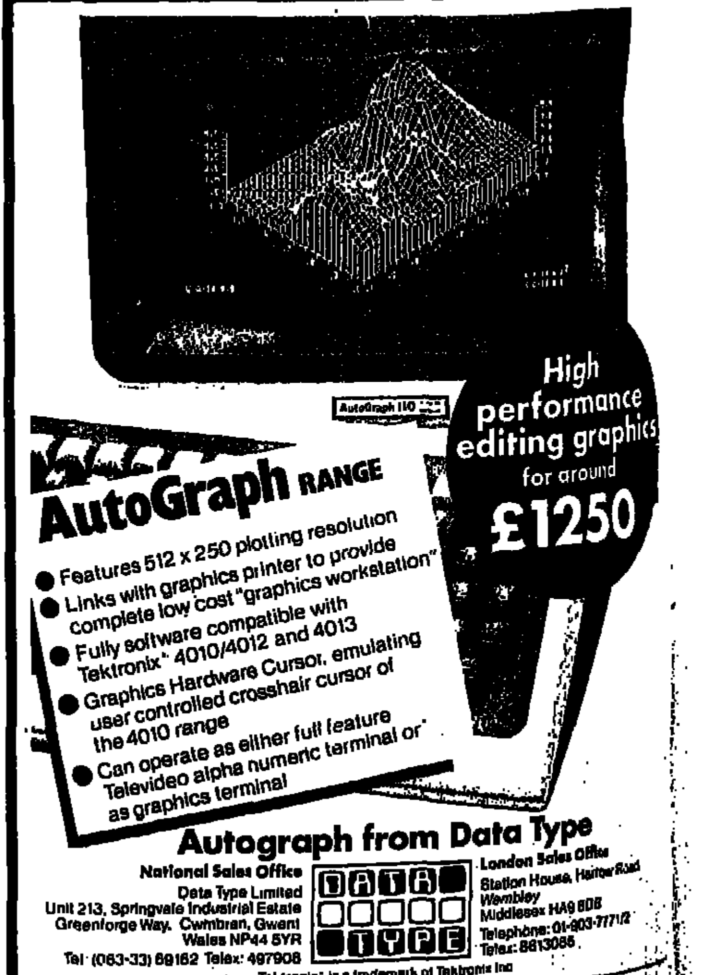
These milestones, coupled with news that DEC "now offers a similar set of Unix facilities for DECSystem-20 hardware," indicates official DEC support for Unix soon.

UCSL move loses 64 jobs

by Philip Hunter

UP to 64 jobs may be lost at Unilever Computer Services (UCSL) as a result of a move to a £4 million computer operations centre in Woking. Notice of intended redundancy has been given to 23 full-time and 41 part-time people, mostly peripheral operators or machine mechanics.

UCSL points out that some of these may eventually be re-employed elsewhere in the company. "We give people early warning of intended redundancy, then beaver away trying to find alternatives for them," says UCSL's personnel director Tony Ebutt.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Tops rejig to break vicious jobs circle

by John Kavanagh

A FAR-REACHING overhaul of the government's much-criticised Tops computer training scheme is under way at the Manpower Services Commission.

The MSC, which runs the scheme, is examining commercial training firms offering Tops courses and looking at ways of getting trainees out of the vicious circle of "no experience, no job".

At the same time the National Computing Centre and the Institute of Data Processing Management are talking about setting up a register of Tops and IDPM trainees for employers willing to take on raw recruits.

At the MSC Hugh Sharp, head of computing training, said he wanted closer ties between Tops courses and real work. One possibility was for training organisations to take on live work from computer departments for trainees to do as part of their courses.

Another of Sharp's ideas involves companies offering to take Tops graduates after a basic training, and complete that training themselves with MSC funding. This would enable an employer to train a recruit according to its own needs.

"We will look at the vital area of who should be responsible for placing trainees in jobs," said Sharp. "At present this tends to fall on the training providers.

"We must also examine the training schools. About 80% of Tops training is done by commercial schools."

A survey of people who left Tops courses two years ago could be set up to see if the scheme had enabled them to change career. "At present we do a survey after three months, so for all we know they might be unemployed or running their own companies after a year," said Sharp.

The MSC is also forming a discussion group of employers, Tops graduates, trainers and MSC staff to discuss the strengths and weaknesses of the scheme. Sharp wants employers' views. His address is Manpower Services Commission, Moorfoot, Sheffield 1.

The IDPM's plan for a register is aimed at helping both trainees and employers. "Employers which want trainees are not willing to advertise because they get deluged with applicants," said secretary-general Ted Cluff. "With this scheme they could go to the register.

"The problem is the lack of support from employers for trainees. But they must take on trainees to replenish the market at the bottom end as people retire or leave at the top. This register will be worth doing even if we only place two trainees a week."

A recent survey showed that 55% of Tops graduates failed to get computing jobs within three months of completing their courses.

■ The Computing Services Industry Training Council is talking to the government about backing for a plan to train a pool of unemployed people. Gordon Ewan, head of the council, said the scheme could help smaller companies in particular, companies which could not afford training and thus merely contribute to the damaging recycling of experienced staff.

CLUFF . . . "Lack of support from employers".

EWAN . . . Help for smaller companies

STC out of System X production

BRITISH Telecom is to step up installation of its System X digital public telephone network, but Standard Telephone and Cables is dropping out of the production team. Under a new agreement Plessey and GEC will take responsibility for development of the system.

ITT, *STC's parent company*, already sells a rival to System X. STC will now concentrate on production of its TSE4A digital exchanges.

Initial attempts

WITHIN the first five weeks of launching its transaction telephone service, Barclaycard netted 15 illicit attempts to use its cards, of which at least four pertained to fraud, according to Roger Alexander, manager of the research section at Barclaycard.

New models

ICL has added two models to its DRS 20 range of distributed processing systems. One of the new models, Model 25 includes an 11-Mbyte 5¼-inch Winchester type disc. Prices for the Model 20 start at £3,450 and the 25 at £5,450. They will be made initially in New York.

Record sales

MIDDLESEX-based services company Systemsolve had record sales of almost £1.5 million in the six months to the end of June. A spokesman said the growth had mainly come from new business areas.

£1m update

LOUGHBOROUGH University is to spend almost £1 million to replace its ageing ICL 1904S computer, and to provide "extensive new facilities". A spokesman for the University said that additional funds would be made available to provide networking facilities.

More memory

APPLIED Technology Venture, which recently bought the AM Jacquard division of AM International, has enhanced the performance of the J100 system. Maximum memory has been expanded to 512 Kbytes.

Amdahl launch

AMDAHL has launched a low-end version of its 580 series computer. The 58/50 is rated at about 10 million instructions per second (mips), equivalent to IBM's 3081 G. It fits between Amdahl's 470V8 and the larger 58/60. Deliveries will start in mid 1983.

Last-minute rush of orders for ICL

by Kevin Cahill

ICL last week ended its current financial year with the biggest flood of orders yet achieved in one week by the company.

Against an average order intake of about £14 million a week for the year, the orders for the last two weeks of September are understood to have been in the region of £20 million each week.

While stockbrokers caution that ICL has experienced quite significant order fluctuation from week to week, most people in the City confirm the rush of orders in September.

The company itself has spoken of the "criticality" of the period, and managing director Robb Wilmot has been active in customer contact. Among the orders finally signed is the Atlas 10 order for the Rutherford Laboratory. The company has said that it intends to install two of these machines in 1983.

The second customer has not been identified but British Petroleum, ICL chairman Sir Christophor Laidlaw's old company, has been mentioned. BP was unable to confirm this.

Another major IBM user, British Aerospace, is understood to have flown staff to Tokyo to evaluate directly the Atlas machine which is built and supplied by Fujitsu.

About 400 2966s have so far been ordered – well above the original target of 370

DEC piracy suit irks users

by John Kavanagh

DIGITAL EQUIPMENT users *have made public their concern* about the giant minicomputer firm's software piracy lawsuit against a UK systems house, Darkcrest. And the chairman of the DEC user association's commercial systems group has described the company's action as "quite extraordinary".

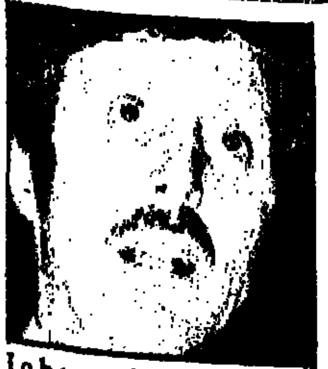
"As a result of this case we contacted senior Digital management to safeguard our members' interests," said Ray Woodyear, administrator of the 5,000-strong UK arm of the user group, DECUS. "This is the first time such a case has arisen in the UK."

DECUS sought and received assurances that there had been no change in DEC's software licensing arrangements affecting end users which buy directly or through authorised distributors or OEMs. And it wanted assurances that users which bought systems and software in good faith would not be at risk.

DEC has taken Darkcrest to the High Court claiming "substantial" damages for alleged software copyright infringements. In return Darkcrest is claiming exemplary damages of £10 million from DEC.

Peter Dick, chairman of DECUS' commercial systems group, said, "I find it quite extraordinary that a company like DEC is resorting to legal action, however aggrieved it might feel. It's also sad, because DECUS might well be able to help resolve such a problem."

DEC replied that users sometimes passed software on in error, unaware of the licensing rules. "We would settle this through a user group but it's a very different matter if it is part of someone's business practice."



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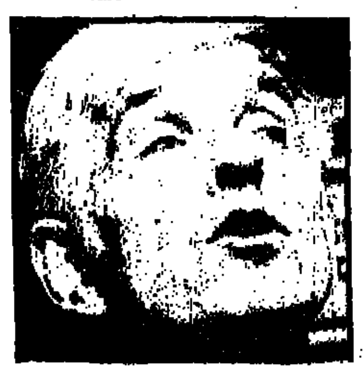

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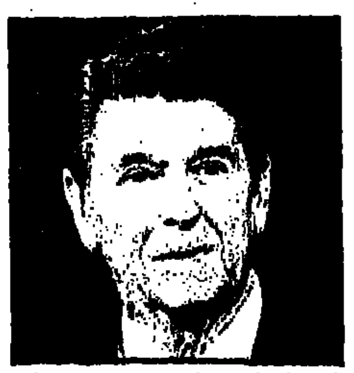

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Operators are a 'dying breed'

by Andrew Thomas

COMPUTER operators are a dying breed, and natural wastage and reduced recruitment will only provide the cash for increased salaries for one year, according to a report* published today. Should 1983 be a year of zero or negative growth, thousands more private sector jobs will disappear.

Based on figures taken between March and August, the average annual salary increase across all industries is running at 7.7%. This represents an effective fall in total remuneration when inflation is taken into account.

A glance at the list of basic salaries reveals that there has been no effective increase in the salaries of analyst programmers in the last six months, and that computer operators have disappeared from the survey results.

Peter Brown, of Reward Regional Surveys, says that the reason for this omission is simple:

"Computer operators do not represent a significant job category in most of the companies surveyed. In almost all the companies we sampled, minicomputers are being installed in user departments and only the very large firms still run large mainframe installations. These minis require little or no operator intervention, and the overall number of operators is now on the decline."

Fringe benefits such as company cars are being re-appraised by many companies, and private medical insurance appears to be the only growth area in "perks".

House prices are unlikely to recover significantly in the next year, and salary increases to maintain living standards will need to be in the region of 10 per cent. A couple with two children living in a 3-bedroomed semi-detached council house, paying local rent and rates, who eat 46 meals out annually, run a 1000cc car, have no telephone, and use coal and electricity for heating, require an income of £7,093, compared with £3,328 in 1976.

Higher up the scale, a similar family living in a 4-bedroomed detached private house with a 65% mortgage of about £28,000, eating 129 meals out, running a 1500cc car, a telephone and gas central heating, need to take home £18,305 to keep the wolf from the door. The same family in 1976 needed only £8,591.

BASIC SALARIES FOR SIX MONTHS ENDED SEPT., 1982

	Average	Highest	Lowest	Annual Increase
Systems manager	£13,455	£17,306	£10,015	£1,987 (17.3%)
DP/ops manager	£11,300	£15,071	£8,694	£1,598 (16.4%)
Senior analyst	£10,114	£12,966	£7,976	£914 (9.9%)
Analyst	£8,502	£11,211	£6,500	£922 (12.1%)
Senior programmer	£8,528	£10,931	£6,984	£490 (6.0%)
Analyst/programmer	£7,990	£9,500	£6,318	— —
Programmer	£6,983	£8,500	£5,500	£791 (12.7%)

*Reward Salary and Cost of Living Report. Published by Reward Regional Surveys, 1 Mill Street, Stone, Staffs ST15 8BA. (0785 814554) £48.

WILSON . . . "People preferred voice communication".

System recognises up to eight seconds of connected speech

by Donald Kennett

UP to eight seconds of connected speech can be recognised by the speech recogniser launched by GEC-Marconi Space & Defence Systems last week.

The SR128 speech recogniser was one of a small number of commercial systems surrounded by military equipment, ranging from torpedoes to mobile satellite ground stations, on show at the Marconi group exhibition in London.

Development work on the recognition algorithm was kicked off by a project on applications in aircraft and these are expected to be an important area for speech recognition. But Marconi speech processing manager Jeff Wilson sees plenty of applications on the ground too, starting with computer-aided design and other graphics applications and ending up in the keyboardless terminal for managers.

The machine carries out pattern matching with dynamic programming. The recognition algorithm is implemented in medium-scale integrated (MSI) Schottky TTL logic on eight printed circuit boards and the device has an 8085 eight-bit processor chip for housekeeping and text output. Wilson reckons that the price of under £10,000 should enable him to sell between 50 and 100 of them in the first year.

He answers the objection that adequate input devices already exist by pointing to the early history of the telephone. "When the telephone was invented, the telegraph already existed and was cheaper to use," he says, "but people preferred voice communication so the telephone took over."

The ability to recognise connected speech rather than just single isolated words is the key to making the system usable in practice, he adds.

The device has a maximum vocabulary of 240 words, but all the words in an eight-second burst of speech must come from the same subset of that with no more than 128 words. Each application is controlled by data on two minicassettes, one with the text to be shown on the 40-character front panel display and output to host processors when the word is recognised and the other to hold the result of a training session in which the user speaks each word of the vocabulary once.

The text tape also holds the syntax of the application — that is, which subset of the vocabulary will be available for recognition as a result of the words previously recognised.

Plessey gets £33m US foothold

PLESSEY has gained a footho the US public telecommunica market by buying Stromberg-C son for £33 million from G Technologies. The company i of three main suppliers of s switching systems to the inde dent telephone companies, b lost £9 million last year.

It was sold to United in Jun General Dynamics as part o group of several telecommu cations companies which Ge Dynamics refused to sell sep tely.

China venture

CABLE & Wireless has follo up a major order for oilfield c communications systems in C na's Guangdong province b agreeing to form a joint ven operating company with th provincial telecommunicati authority and the China Natio Oil Joint Service Corporati

AT&T in talks

PHILIPS and AT&T Interna tional have begun formal disc sions on a possible joint effort digital public telephone exchan outside the US. AT&T Interna tional set up its first overseas of in London late last year. It ha since bought into Irish telecom nications manufacturer Telec and is discussing a marke agreement for US-made offi radio equipment with Plessey.

Satellite deal

AN agreement with Canada sig by Information Technology M ter Kenneth Baker during a v there last month could lead to U companies building a £200 m satellite to be launched in 198 sharing information from i agreement was for th countries to collaborate o definition for the Radarsat connaissance programme.

Telecom transfe

THE government is keen to s a project through the Internat Telecommunications Unio transfer scarce telecomm cations skills to the devel world, Industry Secretary Pa Jenkin said in Nairobi last week.

SMITH . . . Security next.

Automate your own operations — call

by Claire Gooding

DATA processing departments are being urged to automate the last bastion of manual procedures — themselves. The call comes from systems software firm Computer Associates which is claiming to have cracked the problem of using the computer to monitor its own operations.

The product, CA Scheduler, was released in the UK this week after two years' work. "The idea behind it was to mimic the decision processes which are made in the operations room and build a tool which would handle them automatically," explained sales director Cliff Smith. "People have already automated similar decisions on stock control, so why not on operations scheduling?"

The Scheduler is a high level control language which analyses the jobs to be done and sorts out priorities by testing conditions. It can be used for simulations so that DP managers can predict difficulties, and also has a "what-if?" feature. This means that DP people will be able to predict the effect that, for example, 100 IBM Personal Computers linked to the mainframe will have on the efficiency of operations.

Although several products tackle the task of scheduling piecemeal, Smith believes CA is the first to supply such an all-embracing method of controlling operations. The next big area, he believes, will be security, which will become a more thorny problem once a wider cross-section of employees get access to data.

Since its tie-up with Capex, CA is in a position to attack both Capex's market for operating systems and its own traditional DOS area.

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UK boost for APL on micros

by John Kavanagh

TWO UK companies are pushing APL as the language of the future for microcomputers — with British products. Last week a London-based APL consultancy, Inner Product, launched a £360 hardware and software package for eight-bit machines, based on a virtual memory version from a UK programmer. And a company in Chester, called APL, revealed it was financing the development of a version for IBM's Personal Computer.

"Our VIZ APL is a fully-featured version and it's written in machine code, so is very fast," said Inner Product's managing director, Dominic Murphy. "Unlike other versions it handles virtual memory, so it can produce programs which are much bigger than the micro's standard 64K memory. It can use the floppy discs to produce applications of up to a megabyte of virtual memory."

Murphy said Rank Xerox would be selling the product on its 820 microcomputer. Other outlets would be dealers looking to increase programmer productivity, small business users and the more sophisticated hobbyists. The language could become big in schools, Murphy said.

VIZ APL was developed by a young programmer, Paul Chapman. It comes as a circuit board, read-only memory, a set of k caps showing the special AP characters, plus a manual and ting instructions. It runs microcomputers based on the log Z80 processor and can terface with files managed by CP/M operating system. A com tible 16-bit version will be out the spring.

Murphy added that as a fu featured version, VIZ APL also compatible with systems veloped on mainframes.

Meanwhile APL is working a Canadian company, Ideal Co puter Systems, on a version fo IBM Personal Computer.

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Sord arrives in UK with £6,000 kit for polytechnic

by Kevin Cahill

JAPANESE microcomputer company Sord marked the UK launch of its marketing operation last week by donating £6,000 worth of equipment to aid systems research at a UK polytechnic.

Opening the London office, Sord president Takayoshi Shiina said he wanted Sord to have a 10% to 13% share of the UK market for personal and professional micros within one to two years.

This is the current size of Sord's share of the French market, and Shiina said that he hoped to achieve the same in Germany and Italy.

The company currently markets a large range of 8-bit and 16-bit micros and peripherals, but Shiina added that he would introduce a 32-bit machine within a year.

Shiina said he foresaw the 32-bit market becoming dominant within two years. Sord is developing a combined database machine and array processor based on the 32-bit micro for that market, he said.

The company has actually completed, separately, the developments of the database machine and the array processor, and is currently involved in merging the two pieces of hardware into what Shiina described as a DAP (Distributed Array Processor)-like device.

The combined DBM and AP would give the company a machine which emulated the features of the CAFS and DAP machine which ICL is currently developing, although the ICL project so far revealed is for separate devices.

Apart from the high-end products which are becoming the centrepieces of the Sord range, the company has also introduced a £100 product for the hobbyist market, called the M5.

Paying tribute to the UK as the original source of computer expertise, Shiina said he would like to form some association with Clive Sinclair and also set up research centres in the UK.

As a first gesture in this respect he has offered £6,000 worth of hardware to the new knowledge-based system centre at the Polytechnic of the South Bank in London and has started discussions with the centre's head, Annie Brooking, about funds for a research studentship.

Brooking commented that she had often heard companies say they were going to make commitments but had never seen the commitment actually implemented within hours of the offer.

SHIINA . . . 32-bit market dominant in two years.

Firms link to put a stop to piracy

by Andrew Thomas

MORE effective prosecution of software pirates could result if a new consortium of software houses gets off the ground. Trevor Brownen, chairman of Torquay-based Crystal Research, approached some of his rivals last week with an idea for a consortium specifically designed to provide an effective agency for the prosecution of software pirates.

The basis of the software protection consortium is to provide the resources to take offending companies and individuals through the courts, rather than the out-of-court settlement that has up to now been the usual course of action. The idea is to make examples of copyright offenders as a deterrent to others.

"I had only phoned about a dozen firms before word spread on the grapevine and I started receiving calls from others asking about the idea," says Brownen. "By the end of the day I'd had 15 companies tell me that they were definitely in," he added.

Brownen says that the latest estimates put the cost of piracy in the US at more than $2 billion, and that four out of five copies of all software are illegal. VisiCalc has 250,000 authorised users, but an additional 625,000 illegal copies.

"With the UK software industry running with a turnover of between £10 million and £15 million, we're looking at a very large sum of money," says Brownen.

Simon Elsom, a law student at the University of Aston in Birmingham who is working on software piracy as part of his PhD, says that the current laws on copyright are adequate, but the lack of precedents concerning software thefts is making interpretation of the law difficult.

Elsom is secretary of the British Computer Society's specialist group on the technology of software protection, and will make a presentation of his survey in January next year.

Derek Grover, chairman of the BCS group, said no approaches had been made to him by Crystal Research. "I do not know about them, but I would certainly be interested in hearing from them."

Grover added that his group was holding a meeting in early November in conjunction with the BCS law specialist group under the chairmanship of Bryan Niblett, to discuss problems of software piracy and possibilities for bringing actions to court.

Brownen claims that his company has supplied a copy of a piece of software for validation, only to find later that 40 copies of the software and its documentation had been disseminated through the customer's organisation.

SNOW . . . Aiming to drive a wedge.

US micro maker for Europe

by Philip Hunter

US BUSINESS microcomputer maker Vector Graphic is trying to keep up its momentous growth by launching into Europe. The company, which last year turned over $36 million after six years of trading, will base its new marketing operation at Windsor and Dusseldorf.

Vector's two front-line products are the Series 5000 multi-user desk-top system for small businesses or departments, and the Vector 4 single station computer with 8- and 16-bit microprocessors. Both were introduced to Europe at the spring Hanover Fair.

According to president Fred Snow, the aim of the products is to drive a wedge between the personal computers and the larger minicomputers. Vector places emphasis on graphics.

Vector began with $6,000 and a memory board in 1976 when it was set up by two women, Carole Ely and the German Lore Harp. Its growth mushroomed until last year, when profits declined for the first time.

Harp blames investment in new offices and salespeople, and the recession, for the brake on growth.

But Harp places great hope in the new European operation which she expects will fuel nearly half of Vector's sales target of $200 million within three years.

The European operations manager, ex-ICL employee Nigel Timson, will be based in Windsor, with Brian Martyr reporting to him as sales and marketing manager.

Until now the marketing channel for Vector's business microcomputers has been its network of 450 distributors, mainly in the US and with a handful in Europe.

Top bridge players have hand in fibre optics net test

by Jack Gee

THE International Bridge Championships provided an occasion last week to test a videotex and cable television link on a section of Biarritz' fibre optic telecommunications network. It will be the world's first when it enters service next year.

The Municipal and Bellevue casinos were linked by a 1,600-yard five-fibre cable for the transmission of the close circuit TV programme on big screens. The programme was also shown on monitors in Biarritz' main hotels.

Players' bridge hands were also presented graphically on videotex Minitel screens, and were transmitted over the same fibre optic link. IBM provided five 5120 computers for this purpose with line printers to produce newspaper-style reports of the championships.

Cabling for the telecommunications network, which is due to enter service next summer, is well under way, and construction of buildings to house switching centres has been completed.

Biarritz was chosen for the trial because much of the city is in a shadow area where television reception is unreliable. Besides cable TV, the optic fibre network will offer Teletel, France's interactive videotex with a range of services including the electronic telephone directory.

All the 1,500 subscribers who will be connected to the fibre optic network can rent videophones from French Telecom. The rental charge will be half that of a telephone set. Videophone communication will be available only between subscribers on the fibre optic link within Biarritz.

Cable TV will offer 15 French and Spanish TV channels and 12 stereo channels on VHF.

French Telecom is planning to issue "smart cards" to Biarritz subscribers at a later stage to enable them to use their videotex terminals to access electronic fund transfer services.

Staying afloat

NATIONAL Semiconductor reported first quarter profits of $60,000 on sales of over $350 million. A spokesman said this showed a marginal increase over the first quarter of 1981, despite adverse market conditions. Its National Advanced Systems subsidiary had a record first quarter.

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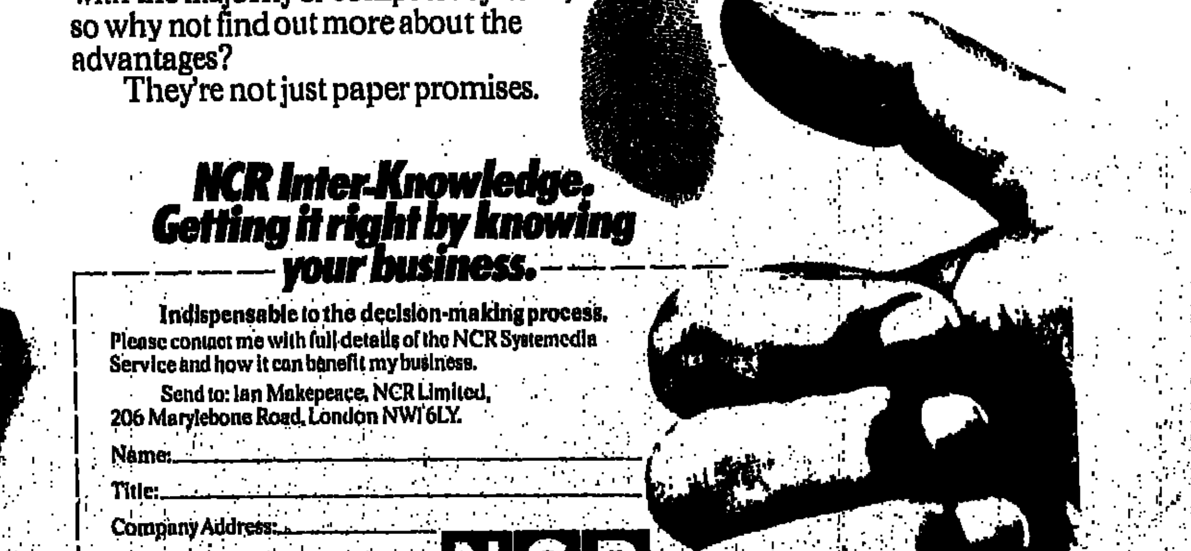

'Cobol jobs are not under threat'

by Philip Hunter

COBOL programmers at a conference on fourth generation languages were reassured that their jobs are not threatened by the maturing breed of commercial systems generators.

In his rounding-up speech at the BIS-sponsored conference, David Broughton of BIS Applied Systems said: "It is complete and utter nonsense that end users will be given a system to develop their own applications. There will still be a requirement for central data processing."

Previous speakers such as Terry Booth, UK general manager of Cincom Systems, echoed this sentiment. Of Cincom's Mantis system, Booth said: "It's only really for end users with DP experience."

Booth discribed Mantis as a fourth generation application development system which features as a key part in TIS, Cincom's Total Information System. But he stressed that Mantis can be used independently of the Total database.

A few delegates were unhappy with applications generators being defined as fourth generation languages. Booth thought the term misleading as applied to Mantis. "It's not just a replacement for Cobol or PL/1," he said.

Not all delegates were pleased with what they heard. Many came from large organisations such as banks and insurance companies with huge applications backlogs, and an assortment of different computers.

A systems analyst from Barclay's Bank captured the mood when he criticised some of the systems discussed at the conference for not coping with practical problems like multi-user access, database roll forward lockings, and portability across different manufacturers' hardware.

David Whiteside, managing director of Scarab Computer Services, opened the conference with a description of an evaluation of fourth generation systems supIliers his company had conducted. This evaluation found, said Whiteside, that a new breed of DP person was emerging, the business systems analyst.

This was someone who understood the needs of business, and designed and developed systems with a fourth generation language.

The data processing view was put by Michael Ribbins, assistant group manager for computer services at the British National Oil Corporation.

Ribbins said the bridge between user and programmer defined by the business systems analysts already existed in his engineering department.

BNOC engineers play around with Fortran and Basic for prototyping, then hand over to the systems analyst for development, he said.

BOOTH . . . "Only for the experienced".

Database network is aimed at doctors

by Howard Karten

THE American Medical Association and GTE Telenet have announced a sophisticated medical information network aimed at physicians and others in the medical profession. Subscribers throughout the world can access one of four databases, as well as an electronic mail and bulletin board system. Additional databases will be added eventually.

The four databases available initially are on drugs, a second on diseases – both from books published by the AMA – a third on medical procedure and nomenclature, and a fourth which is a bibliographic database on non-clinical aspects of health care.

According to Dan Harris, director of the AMA information network, a recent survey of terminal use in the medical industry found some 250,000 such devices. Most are thought to be used in hospital or other organisational settings. However, the AMA is in regular contact with vendors of terminals and mini- and microcomputers, and it seems that the use of these devices by individual physicians is soaring.

There are already a minimum of 90 medical – or medicine-related – databases available to subscribers. AMA/Net is designed for use by individual physicians, researchers, and others. The AMA is the chief professional organisation for America's 450,000 doctors.

GTE Telenet, a subsidiary of US Telecommunications giant GTE, is one of four large value-added networks providing packet-switching communications services.

In the US GTE Telenet can be accessed with a local phone call in almost every city in the US.

According to Harris, negotiations are currently under way to add more databases, such as ones dealing with poison control, therapy and patient management, clinical literature, and laboratory data. Some time in 1983, articles from some 300 domestic and foreign medical journals will also be available.

In tests AMA/Net has been used by about 500 people concentrated in Washington DC, Houston, Texas, Los Angeles, and Chicago. Those users represent a variety of medical workers – solo and group practitioners, hospital physicians and so on.

Harris says that market research by GTE suggests that AMA/Net will appeal to a wide variety of physicians, and that not all services with appeal to all users.

It costs from $25 to $27 per hour to access AMA/Net information depending on which database is accessed. The electronic mail service costs $7 to $16 per hour depending on the time of day it is used. A basic one-off subscription, fee of $100 is levied, and AMA/Net is accessible from anywhere in the world. It is supported by training and ancillary services only in the US.

Other medicine-related databases from other suppliers may be licensed by the AMA. Harris says anyone who wishes to discuss additional databases can reach him at AMA headquarters, 535 North Dearborn Street, Chicago, Illinois.

AMA/Net will eventually be a very large relational database, with pointers within each database to other relevant databases.

Fair shares call in wiring-up UK

by John Kavanagh

THE government's race to make the UK a cabled nation should be slowed to ensure that deprived communities get the same benefits as rich ones and the network design reflects the likely use. Trials in different types of communities should replace the headlong rush proposed by the Prime Minister's Information Technology Advisory Panel and the Confederation of British Industry, among others.

These are the views of the Milton Keynes Development Corporation and its consultant, Eosys, in a submission to the Hunt Commission on the cabling of the UK, which presented its findings to the Home Secretary last week.

The report is based partly on Milton Keynes' experience as something of a wired town: 20,000 households are linked in a cable network.

The views are in direct contrast to the government's, which were confirmed last week in a speech by Junior Industry Minister John Butcher to the Television and Radio Industries Club. "We are determined to see the earliest possible introduction of cable and this may mean that national requirements should be minimal," he said.

"It would be highly dangerous if government were to adopt a preferred system architecture while the technology is developing so rapidly. It may be that British Telecom and its competitors will have to adopt an evolutionary approach rather than set off with a state of the art switched interactive system."

Milton Keynes also says more of the signal coding and decoding for services such as viewdata and teletext could be taken out of individual subscribers' conversion units and put in the shared local nodes. And that would cut the cost to the householder of wiring his home from the estimated £200 or £300 to just £50.

"We should take account of the different needs of the business community and domestic users and allocate the bandwidth accordingly rather than simply provide blanket coverage," said Fred Klerks, the Eosys consultant who worked on the submission. "Business users will want high-speed data communications for regional and national distributed processing. Domestic users will not want a lot of interactive working."

The submission suggests the national trunk could feed into regional domestic and business nodes, which would split the bandwidth to local nodes. The separate business and domestic nodes would be linked at each level.

Klerks said there was a danger that deprived and rural areas could be left out of national plans, especially if private companies got the cabling contracts. "I believe the government should say to a contractor, 'OK, you can do Hampstead but you also have to do Brixton'," he said.

■ Milton Keynes looks set to have a national test bed and standards centre for local area network manufacturers and users. The government is backing a £15,000 study into the setting up of a centre aimed at technical and standards work on the connection of LANs to each other and to external services, from telex to viewdata and cable television systems.

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Local council moves its information down line

by John Kavanagh

A MICROCOMPUTER network is being installed by a London borough as part of its policy of moving local authority services from the town hall to neighbourhood offices. Haringey is putting in 28 Prince micros from the UK manufacturer Digico and linking them to a dual Digico M28 minicomputer.

The network will run its own applications and be connected to the IBM mainframes which Haringey shares with other London boroughs in the London Online Local Authorities consortium (Lola).

The network plan has brought software house Business Micro Sytsems its 22 nd – and biggest – order for its package for council's direct labour organisations. The contract is worth £237,000.

"This council is committed to decentralised management and technology will allow local offices to share information," said chief housing officer Robert Towner. "Our manual housing maintenance system has been centralised but now people will be able to report repairs at their local office."

Future systems for the network will include planning applications, while the link to the Lola mainframe will give the neighbourhood offices access to rates and rents records for enquiries.

CAP second non-stop system aimed at industry

by Maggie McLening

CAP is making a serious bid for a slice of the growing non-stop systems market by launching a second product within four months of the first.

The first non-stop system, Magus, was launched in June and is a real time development environment, but the second is aimed specifically at the industrial user. Captec is an integrated turnkey system which provides full hot standby dual processing, equivalent to those offered by Tandem and Computer Technology for the commercial market.

A recent study by ITOM, the US think-tank, predicts that the market for fault-tolerant systems will grow to $22 billion by 1986, 15% of which will be met by hardware, with Tandem taking the lion's share. But Peter Howson, managing director of CAP Northern which developed Captec, said CAP will not be in direct competition with Tandem, despite having a lower-priced system to offer.

"We see the market for Captec as being in materials handling, where CAP already has warehouse management and parcel and baggage sortation systems, and in process automation," he said. "It will not compete directly with existing suppliers because users will require greater speed of reaction.

"In a banking or commercial environment where there are huge volumes of high-integrity data being handled, the changeover will necessarily take longer, but with Captec you are talking about switchover in 250 milliseconds."

Howson expects customers to opt for Captec because it offers a high-reliability growth path with a low-cost entry point. Prices start at about £20,000 for a system based on a DEC PDP-11/23 with dual 10 Mbyte discs, or at £55,000 for a dual processed PDP-11/24 system with duplexed dual 10 Mbyte discs.

The system is hardware-dependent. CAP is a DEC OEM, but is having discussions with other manufacturers. Captec fits on top of the RSX-11 operating system and expands and adapts it to the mirror-processing role.

Dual processing is handled by the most innovative section of the system, the middleware, which is the kernel of the real-time environment.

SALES BRI

Euro Spac Agency bu 5 CTL mi

THE European Space Agen ordered five CTL 8066 mi puters from Computer T nology, bringing the total of CTL machines on ESA- work to 26 by the end of the

Two of the machines w used to test the Giotto which is due to fly past Hal Comet in 1986, two will be software development and th will upgrade an existing sys

Mapping system

LASER-SCAN Laboratories Cambridge has won a £600 order from the Mapping Charting Establishment for hancements to its automated graphy system. The order inclu the Laser-Scan Fastrak autom digitising system and two La Scan Lites interactive col graphics workstations.

Sirs takes off

SYSTEMS Designers has wo contract potentially worth £ million from the Civil Aviati Authority to develop and ins the Sirs information retriev system designed to support a traffic controllers at Heathr The system will be based Tandem Non-Stop computers will be capable of providing ra access to several hundred pages text and graphics information up to 16 colours from up to 3 terminals.

£2m exchange

BRITISH Nuclear Fuels installed an ITT Unimat 40 phone exchange costing £2 at its Sellafield fuel reproc plant. The exchange is ini 4,000 extensions initially, grow to serve 8,000. It wa for its facilities for manag control of telephone usage.

Calling card

LANDIS & Gyr has won a mu million pound order for pl card operated pay telephones f British Telecom. Following tri since last year with 200 of th phones made by Sodeco in Sw zerland, during which the Ca phones earned twice as much the phone they replaced, a furth 8,600 have been ordered for UK assembly and installation by ea 1985. The company will al supply 22 million holographica encoded cards for sale to users.

Transpac link

COGEFIMO La Henin, a part nership of two French financi institutions, is to convert the link between its 26 branches and head office to operate via Transpac, the public packet network, instead of over the telephone network. At the same time it will replace 12 of the 26 NCR 8250 small computers i the branches with larger NCR 9040s for greater branch a nomy.

Modems deal

THORN EMI Datatech has won £50,000 order for its Type 9 four-channel 9,600 bit-per-second multiplexing modems from New castle City Council. The council is extending its ICL 2960 based housing management system to cover repair and maintenance ser vices and is using the modems to add separate communications channels to existing links from its eight local offices.

Sales drive

TALBOT Motor Company has sold 400 of the online and batch programs it has developed to schedule and keep track of the thousands of components used in its cars. The sale was to Sigma Motors, the leading South African car company, which has grown ra pidly by making acquisitions. The value of the sale is £250,000.

Baker calls for EEC software link

by Jack Gee

CO-OPERATION between ICL, France's CII-Honeywell Bull, and a German company to work on software development was called for by Information Technology Minister Kenneth Baker.

He said in Paris last week that the Common Market must be used as a framework for developing information technology and promoting exports of Western European products.

The Minister, who was addressing the Club of French Computer Peripherals Manufacturers, said: "Through the Community, and in parallel on a bilateral basis, we must encourage more company-to-company collaboration in research and product development."

The club is linked with UKITO, the United Kingdom Information Technology group, which with similar pressure groups in other European countries form the European Independent Informatics Industries.

Baker stressed that for the Common Market, which represents 30 per cent of the world market for information technology, the removal of trade barriers was vital.

"We in Britain attach the very highest importance to developing the new technologies. But we see immense problems, perhaps even the squandering of a unique historical opportunity if we do not act together as a community.

"We should let industry get on with the job. And we must recognise the importance of training at every level. In developing Community strategy we must not lose sight of the importance of European co-operation outside that framework – particularly in telecommunications and space."

The Minister said the European Social Fund had a major role to play in training young people to acquire skills needed for the new information technologies.

Baker told the French industrialists he had presented France's Minister for Industry and Research with a Sinclair Timex microcomputer.

He added: "The microcomputer is one of the most rapid growth areas in the British economy.

"I would like to see ICL, CII-Honeywell Bull and a German company work together on software development. We have strong software industries in both France and Britain and this is an area where we can co-operate more closely."

Baker refused to comment on the agreement between American Telephone and Telegraph and Philips to develop new telecommunications products.

BAKER . . . "We can co-operate more closely."

Solution to memory problems offered by US data storage firm

by Kevan Pearson

STORAGE starved computer users have a new solution to their memory problems. Masstor Systems, the US data storage supplier, has set up shop in Europe, and is basing its European headquarters in Reading.

And it plans to use UK software expertise for future systems development. "It is difficult to get good software people in Silicon Valley – there are not unlimited supplies and people are expensive. There are more opportunities than people" says Brian Burch, Masstor's European vice-president, systems.

"The UK has some very good software people who are not exactly being chased by employers. A lot of them are doing boring things on contracts or working for big companies."

One of the first things likely to be worked on in the UK are software interfaces for IBM's MVS operating systems and Masstor's Shared Virtual Storage System. "We intend to develop that in the UK," says Burch.

The launch of the European subsidiary coincided with the introduction of a new mass storage device to compete with IBM's 3850 system. The M860 cartridge-based system can store up to 440 gigabytes of online data.

Dataquest, the US research agency, rated the M860 highly, compared to IBM's similar offering, especially considering its purchase price which can be as low as 60% of IBM's.

But it will not be plain sailing, says Dataquest.

Masstor will suffer from many of the problems that affected the launch of IBM's 3850, particularly the problem of overcoming user resistance to new ideas.

One company has recently withdrawn from the mass storage market. Storage Technology, the IBM-compatible disc manufacturer, has dropped its Virtual Shared Storage system, because it believes that such systems will be superseded by developments in optical discs.

Texas to lay off 2,600

by Robert Parry

TROUBLES continue to dog the steps of US semiconductor giants trying to crawl out of the depression in the electronics market. Texas Instruments has announced that it will lay off another 2,600 workers this autumn, bringing the total laid off to just below 10,000 over the last 18 months.

There are no current plans to include UK workers in the 2,600 according to a TI spokesman. The job losses will mainly come from plants in the US and El Salvador.

When natural wastage is counted too, TI, the largest of the US manufacturers, will have cut over 12,000 jobs worldwide.

Other semiconductor companies have been shedding jobs over the year, including National Semiconductor, Fairchild, Signetics and Intersil, and this latest round from TI shows that the hoped for recovery in the market is slow in coming.

The industry was looking for improved business in September, usually a busy time after the summer break. But other semiconductor manufacturers are expected to follow TI and shed more staff in an attempt to keep costs down.

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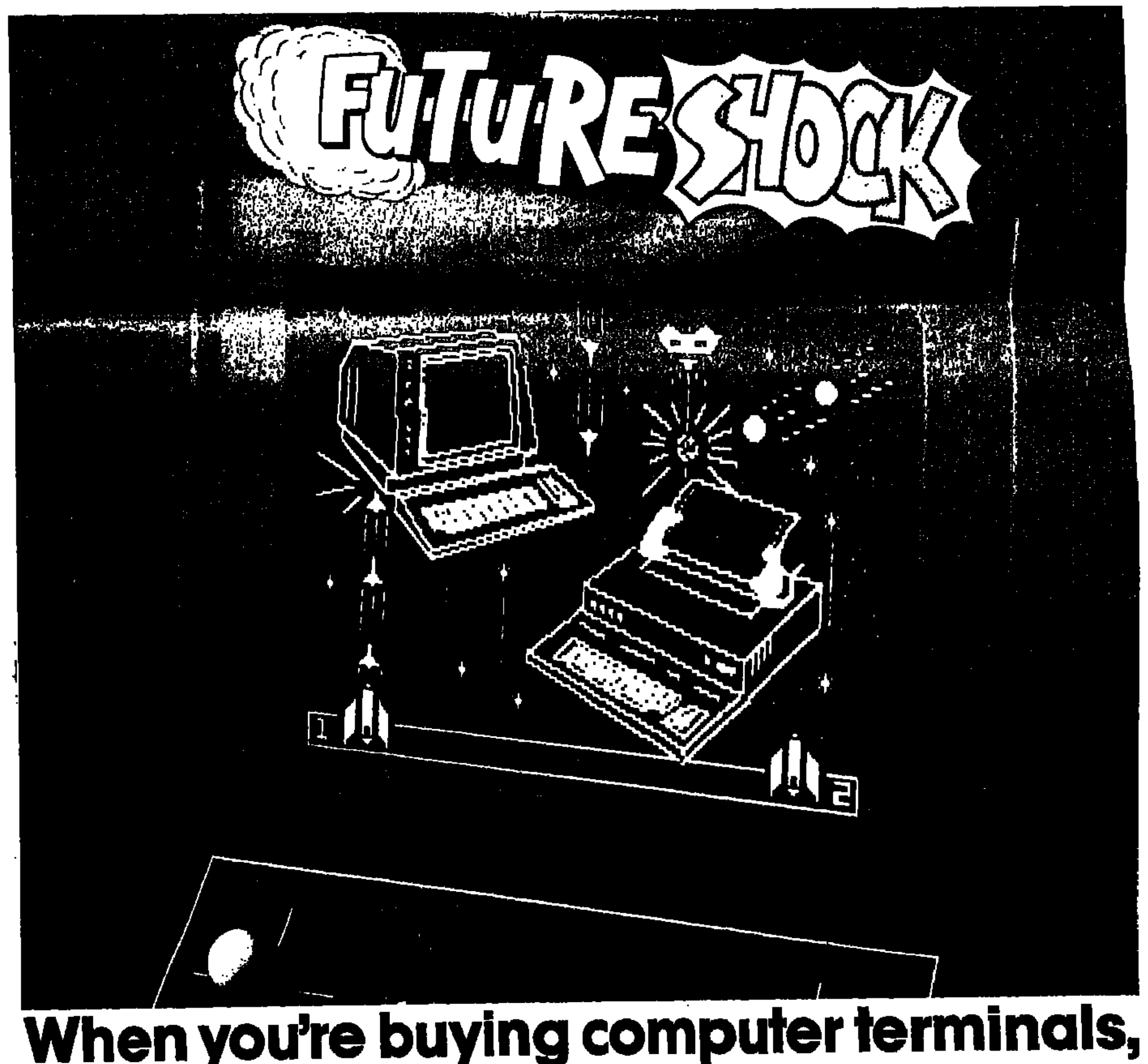

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'Missing link in the office' for UK

by Donald Kennett

A SYSTEM claimed to be the missing link in office technology is being launched in the UK following considerable success in West Germany over the last six months.

Called Wordnet, the system is based on a Z80 microprocessor with 64 Kbytes of RAM and two megabyte floppy disc drives and it is designed to enable up to eight electronic or golfball typewriters to prepare input for a single standalone word processor or typesetting machine.

Paper drafts produced by the typewriter can be used to make alterations on, and one word processor operator has a fair chance of keeping up with the amendments to the work of all eight typists.

According to Wordnet designer Richard Crown, user reaction to the system has been a universal "thank God".

The central unit costs £2,250 and each typewriter interface another £465. Crown says more than £2 million worth have been sold in Germany in six months and he expects to sell between 300 and 400 systems in the UK in the first year.

He has lined up distributors for East Anglia, Surrey and Sussex and the territory between London and Bristol.

Wordnet is currently being made in Germany by Datanet, but having set up the Wordnet company in London, Crown plans to manufacture in the UK too, for the domestic and export market. UK team now numbers 12 and he says his first 30 orders are in the pipeline. The first installation was at the London branch of the Banque Paris Bas.

Crown says the central unit's CP/M-compatible operating system lends itself to the development of a variety of further applications. Future hardware developments include the addition of a 10-Mbyte Winchester disc drive and gateways to Ethernet and other networking systems.

The Ethernet interface is developed now but it is too early for the market, he says.

Initially it will be sold just as a means of getting input from typewriters into word processors and microcomputers. Even the ability of dumping back on to the Wordnet disc from the output end is an optional extra still undergoing testing, adds marketing director Godfrey Smith.

Wordnet's typewriter interface uses optical sensors to pick up the movements of the keys. To input a document, the typist pushes the start button on the line driver box and the system sends the workstation number and a four-digit job number to the strip display in the box.

Spending on micros doubles in year — survey

FOR every dollar spent on mainframe computers in 1981, 10% was spent on microcomputers, according to the influential Gartner Group of Stanford, in the US. This was a rise of over 100% on 1980.

Microcomputer companies are taking a significant volume of sales from the more traditional mainframe and minicomputer manufacturers, says the survey.

The third edition of the group's Top 100 Almanac, shows that while IBM's share of the industry slipped by just under 1%, to 38.1% in 1981, it continues to account for about 60% of the industry's operating profits.

But the remainder of the mainframe community suffered far worse. The mainframe slice of the industry slipped from 61.5% in 1980, to 59.7% in 1981.

The industry as a whole continued to grow. Sales of the top 100 companies rose by 8.5% in 1981.

UK conglomerate introduces a new method of optical disc storage

A SYSTEM which will store reference catalogues and manuals on easily accessible optical discs instead of printed documents was launched this week by UK-based conglomerate Combined Technologies. It has set up a subsidiary to supply a high-capacity document distribution system based on optical storage techniques combined with cheap materials.

Called Mnemos, after the Greek goddess of memory, the new company hopes its system will become the basis of a new type of publishing in which projected images are mixed with the data to support software-driven search procedures.

"Output has been a neglected area," says marketing director Chris Geer. "The words information technology have suggested computers, databases, reduced costs and VDUs all over the place. But most reference material is still found in book form."

The Mnemodisc storage medium is a circular transparent flexible sheet of PVC 12 inches in diameter enclosed in a carboard sleeve similar to a magnetic floppy disc. it can hold up to 6,500 A4-size images reduced 88 times or 4Mbytes of data, but typical mixes are expected to be from 6,300 images with 160 Kbytes of data to 5,000 images with 1 Mbyte of data.

The images are back-projected on to the screen of the Mnemos System 6000 workstation, while the data is read by a CCD (charge-coupled device) array and fed to the workstation's Motorola 6809.

This handles searches, prompts, interrupts and communications via the two serial ports under operator control from the keyboard.

The hardware techniques were developed over the last three years by Patscentre of Cambridge, which will run the first studio where master discs will be prepared from customers' data, text and image input material. Each master disc can be used to press several thousand PVC copies.

The second studio is to be built late next year in the US, where the workstations are due to go into production in February.

The software for the workstations and the studio was developed by Langton Information Systems in the UK and CSS in the US.

The first markets Mnemos will aim at are those currently served by microfiche equipment, such as car manufacturers for distributing their parts catalogues to dealers and engineering catalogues to dealers and engineering companies for distributing standards data and procedure manuals.

The workstation could help people find their way around otherwise indigestible computer-produced listings, as well as being suited to the distribution of software for devices other than the workstation. In that case the documentation would be housed in the same package.

The alphanumeric keyboard contains a 40-character strip display for prompts and status indications. It can also be used to display updated supplements to the information held on the disc, retrieved from a live database via the communications interfaces. One of the interfaces can also be used to drive a printer.

Mnemos' first goal in designing its system was to provide indexing and other page handling facilities. The repertoire of commands available from the set of special function keys includes an interrupt command, for leaving one task temporarily to carry out another and then coming back to it, and a bookmark command for assembling a personal collection of pages.

It also wanted the system to be capable of development in two directions, Firstly, to make it more of a general purpose tool by adding to its range of processor based functions. And secondly by enhancing its display capabilities.

The latter desire is why it has used electron beam recording on to a glass master, a technique which is at the low end of its capability in the current device, rather than laser techniques which would be near the limit of their capability at this density.

The result is a workstation designed to sell at $3,000, compared with (according to Mnemos) $20,000 for a computer-controlled microfiche reader or $15,000 for a high-resolution graphics display based on a CRT.

TAYLER . . . £200 to £300 million to be invested.

Six in race to run mobile radio telephone service

by Donald Kennett

SIX entrants raced to meet last week's deadline for applications to run the one UK licence for a computer-based mobile radio telephone service from 1985, referred to as cellular radio. The prize is put at up to £300 million over the next 10 years to equip the two UK services alone.

Cellular radio uses computers to switch mobile connections from one low-power transmission to the next as users pass through each area, or "cell". Though primarily designed for voice services, the ability of similar techniques to provide a large-scale increase in the number of channels available will fuel the accelerating growth of the portable microcomputer and hand-held terminal markets.

Current systems are providing facilities for 20,000 users, while the cellular systems are expected to serve at least 200,000.

The leading contender for the private sector service, which will compete against the British Telecom/Securicor partnership announced in June, is a consortium called Cellular Radio led by radiopaging and mobile telephone company Air Call.

The government is keen to have as much of the equipment as possible made in the UK so that UK suppliers can compete in world markets. The US, Japan and the Scandinavian countries have been operating or experimenting with services for a number of years and Cellular Radio is backing the US AMPS (Advanced Mobile Phone Service) system for the UK.

Cellular's chief executive Warren Tayler, who is also managing director of Air Call, said: "There is £200 to £300 million to be invested over the next 10 years. Potential sales overseas include the US, including systems licensed from US designers, because of their production capacity problems. The demand is enormous."

The Cellular Radio consortium is led by Air Call, a 25-year-old company which was first in the UK to provide private radiopaging and mobile radio-telephone services and first to be licensed to connect to the public telephone network. Air Call owns 40% of Cellular Radio and is partnered by Cable & Wireless (the world's largest international telecommunications carrier), Telephone Rentals (the UK's largest telecommunications sales and rental company), Prutec (the high technology investment arm of Prudential Assurance), a City investment management company and two regional mobile radio telephone companies.

The government required applicants to give detailed technical proposals, as well as finance arrangements and a long-term business plan. Stipulations included that the service should eventually be nationwide, that the equipment should be made in the UK, or in the EEC, and that it should use the 900MHz frequency band.

Bandwidth sufficient for 330 channels on each service is to be released by the Home Office early in 1985, which everyone agrees is as soon as service providers could be ready.

The choice of system design is part of the application process. Air Call heavily favours the US AMPS design developed by AT&T and hopes that the BT/Securicor partnership will back it too, to give users the greatest opportunity to subscribe to both services and manufacturers the greatest economies of scale in production.

The applications will go to SRI International, which has been appointed to advise the Home Office on the radio regulatory aspects. Its recommendations will then go with the applications to the DoI's three independent consultants.

Tayler said: "I think AMPS is the only system that has continued to evolve, the only one that is properly field proven."

The Japanese system designed by Nippon Telephone & Telegraph and made by Nippon Electric has been operating in four cities in Japan since 1979 and has been sold to six foreign countries, but several different versions have been produced.

The Nordic system made by LM Ericsson for the Scandinavian countries is designed for sparsely populated areas.

The MATSA-E system designed by Philips has yet to see experimental service.

On the supplier side, Nippon Electric has agreed in principle to licence its systems to GEC-Marconi for manufacture and marketing, AT&T International is negotiating a licensing arrangement with Plessey and Harris is believed to be negotiating with another UK company.

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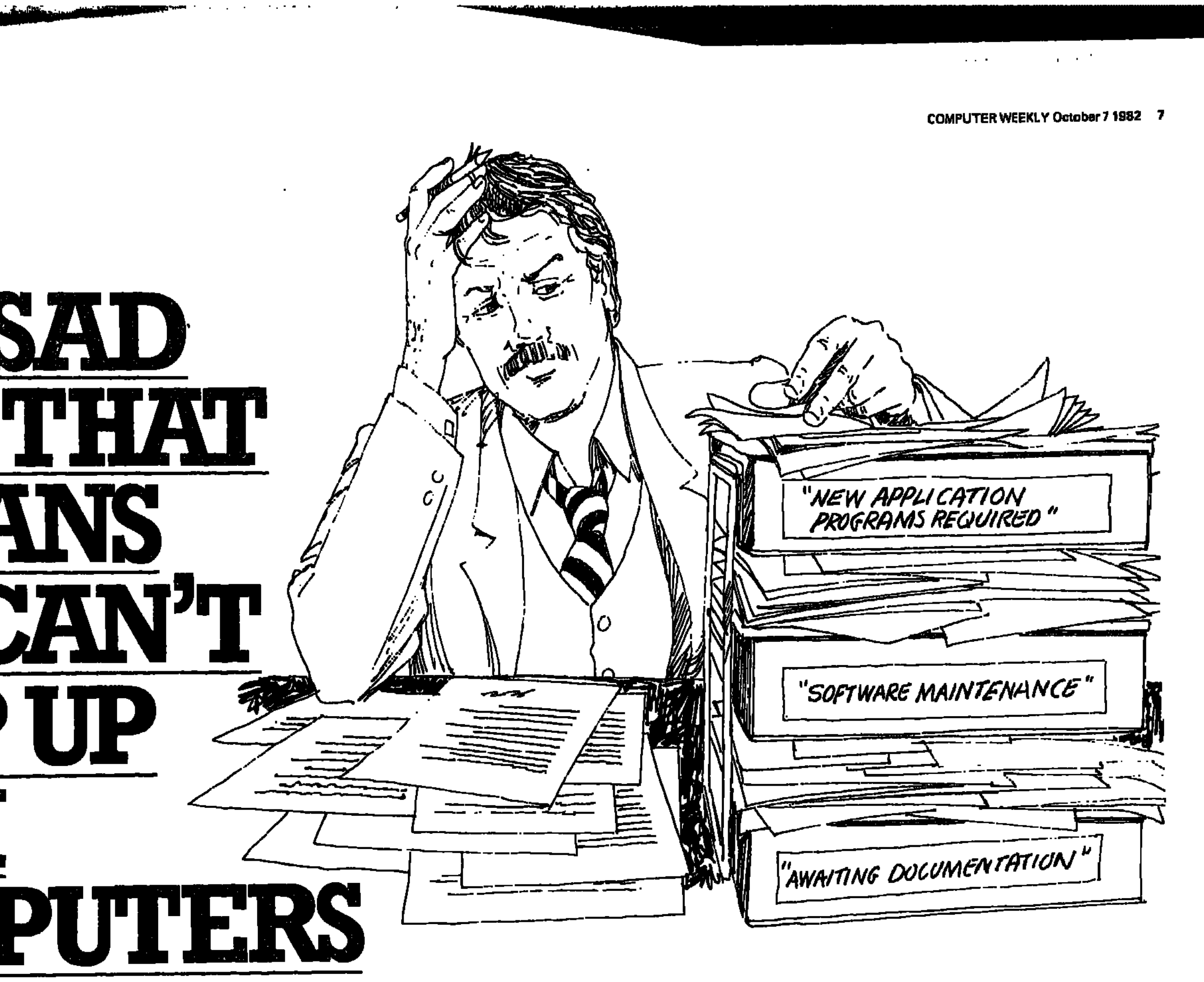

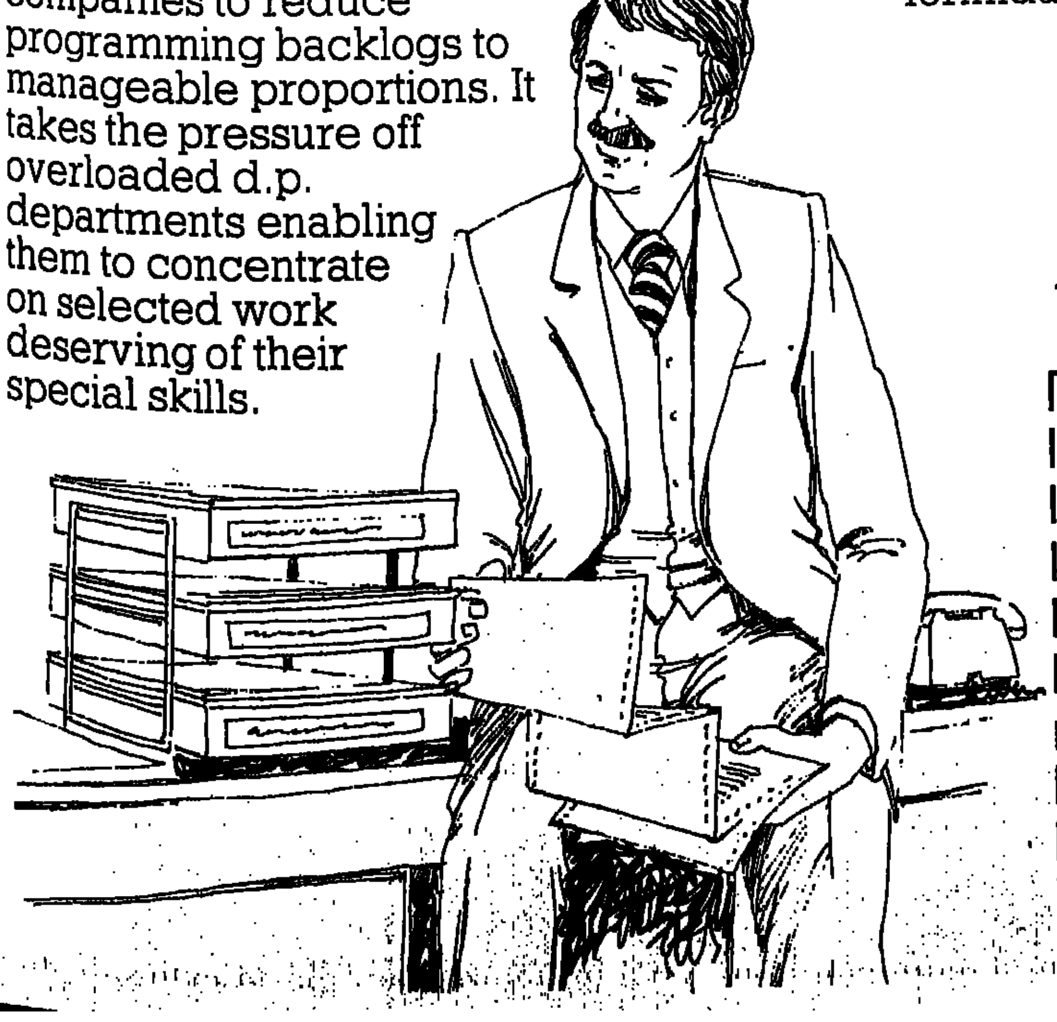

ITS A SAD FACT THAT HUMANS JUST CAN'T KEEP UP WITH COMPUTERS

A few years ago the biggest single problem in computing was the man/machine interface. Since then the machines have advanced enormously with power, speed and capacity increases measured in powers of ten. Man, you may have noticed, is still much the same specification as before.

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SOFTWARE FILE

Agricultural colleges are gradually introducing computer courses as the first step in educating tomorrow's farmers.

Putting cows on computers

FEW markets are more vertical than agriculture and horticulture, with farmers and growers more reluctant to accept automation than the average small business. Agricultural colleges throughout the country are gradually introducing computer courses as the first step in educating tomorrow's farmers, and there has been considerable competition to install systems in the colleges.

Shuttleworth Agricultural College, near Biggleswade in Bedfordshire, has recently installed a British-made Triton 4A microcomputer from Trivector Commerce, to aid the teaching of business management, train students in the use of computers in farming, run the college farm, and assist in college administration.

Software has come from several sources. Reading University has provided the Daisy dairy-management program, and Comput-a-Crop of Louth, Lincs has installed its Farm financial and arable management system. And the Triton 4A has its own general business software, including the Auto-Clerk and Auto-Index filing and retrieval programs, Auto-Writer word processing and B-Stam CP/M communication program.

Triton's operating system is BOS, developed by CAP subsidiary MPSL.

Daisy has recently been rewritten in Microcobol, and gives detailed information on health, fertility, milk yield, feed planning, costings and margins from the individual cow level up to management statistics on the whole herd.

Guarding against computer crime

IF COMPUTER crime rises in the UK as it has in the US, most installations will probably be caught napping.

With the question of data privacy and protection still under sporadic discussion, methods of security have not yet had their airing and there appears to be little sense of urgency within the industry. Most systems are protected by a hierarchy of passwords which are more than adequate for guarding them against all but the most determined end user, but to someone with a little DP skill they are rarely totally watertight.

According to a recent report by Frost & Sullivan, the market for secure information systems in the commercial sector will quadruple by 1986 in the US and be worth about $100 million. The market for military applications is also predicted to triple by 1986, to $20 million.

Data encryption products are specifically mentioned in the report as being proof against most types of computer misuse, particularly when integrated to be transparent to the user. The US Data Encryption Standard (DES) algorithm is found to be "sufficient for almost all commercial applications".

Encryption products in the UK are few and far between, mostly for the IBM marketplace and do not sell particularly well. Software house ADR has had a product called Datasecure on the market for two years and sold a total of four copies: two to government installations in the Middle East, and two in the US.

Priced at £5,000 for a DOS version and £7,000 for OS, it is hardly expensive when taking into account that DES is considered by the US government to be an article of war and any company exporting it needs a special licence.

"We went to great expense to get the code written because we thought people would want it, but nothing much has happened since then," said Nick Pollard, managing director of ADR (UK). "All we've used it for is jokes at presentations about it being so secure it isn't on the price list."

Other forms of data encryption, however, have been incorporated into standard ADR products, such as Librarian so that if the library is dumped it would be unreadable because the data has been compressed from eight-bit bytes to six-bit.

Peterborough Software, suppliers of Unipay, the top-selling payroll package in the UK, has recently implemented a data encryption facility into its Unipersonnel system, although it is not based on the DES algorithm.

"There is an algorithm in there but it isn't based on the standard because when we first considered it, there was no information available," said Nick Cook, general manager of software engineering at Peterborough. "Like most of the ideas for enhancements it came from a customer. It wasn't really difficult to do, because the ideal tool for encrypting is a computer."

Peterborough's scrambling technique is slotted in between the processing of a record and the I-O routine, so that it is scrambled before writing and unscrambled before reading.

KCS Packages, suppliers of the K-PAYE payroll package, is also about to install an encryption facility, according to director Steve Daggett.

Hidden management

ENGLISH language commands can be used to run programs within a CP/M operating environment with a product from Encotel Systems of Croydon.

Developed by Decision Systems in Chiswick, the CP/M Operating Guide hides all the file management, such as listing, deletion and transfer of files, disc copying, memory space availability and execution of package products run on the micro.

"The program loads automatically, then explains its principles and offers the user a menu," explained Bob Jones, director of Incotel. "If you tell it you want to run a program, for example Wordstar, it will check that the correct disc is loaded, run it and then return to the user at the end. It will also remind the user when it is time to produce a back-up of a disc."

Operating Guide is suitable for running on any CP/M-based micro, and costs £50. Jones sees the main potential market as that of dealers who are not prepared to offer full back-up support and training with their products.

"In certain spheres there is enormous demand because it means that the dealer doesn't have to give a lot of support to a naive user," he said. "Decision Systems has had the product thoroughly tested on on-computer people.

"CP/M is a good operating system written for the micro, but the Operating Guide is written for people. It makes micro people literate."

Software File is compiled by Maggie McLening

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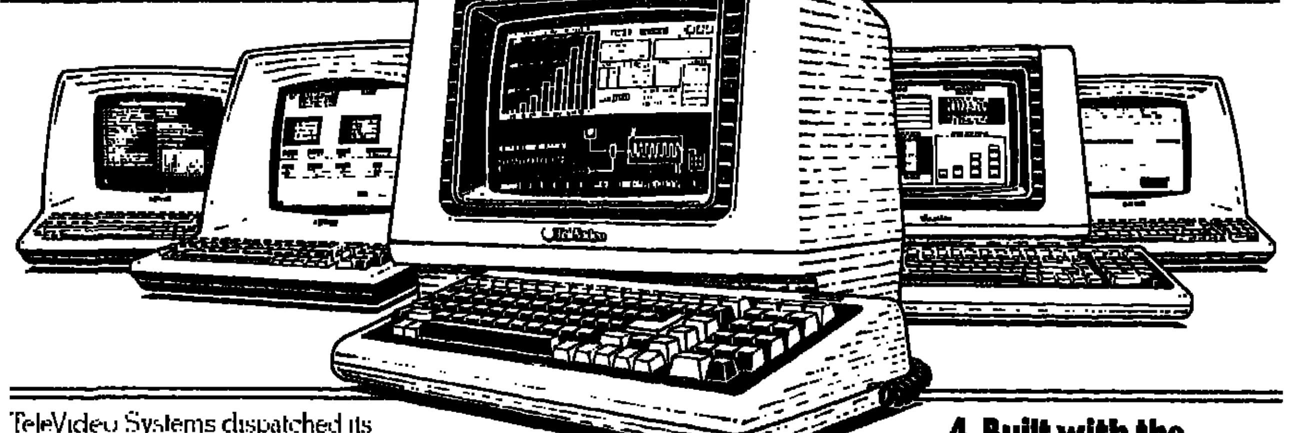

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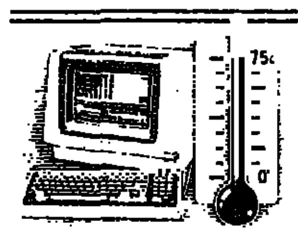

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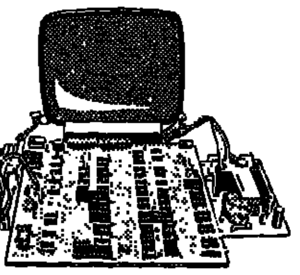

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MICRO NEWS

Intel bid to cut cost of local area networks

INTEL, semiconductor-making member of the Ethernet trio, is out to cut the cost of local networks. In February it will sample two VLSI chips which will replace boards full of less highly integrated components, and is selling now a device to eliminate costly Ethernet transceivers and cable.

The two chips, a local area network (LAN) communications controller and an Ethernet serial interface, will come in at about $90 the pair when first sampled, but Intel expects the price to drop to about $25 by 1985. Using the chips should cut Ethernet connection costs to a few hundred dollars, compared with the one or two thousand of present board sets.

The pair of chips is fully compatible with the physical and data link levels of the DEC/Intel/Xerox Ethernet specifications. The communications controller, 82586, offloads the system CPU, cutting down on software, memory and CPU networking overhead. All the CPU needs to do is prepare the message data and set aside memory buffer space for received data.

The controller is optimised for Intel's 186 processor, the high integration member of its 16-bit family, and has that processor's timing and interface characteristics. It is set up to Ethernet parameters, but is programmable so that things like packet size and address width can be set to fit other networking schemes using the same basic carrier sense multiple access with collision detect (CSMA/CD) technology as Ethernet. Intel says the chip can be used for any CSMA/CD application.

The other chip, 82501 Ethernet serial interface, replaces a dozen components in the connection between the host system and the network. It is a combination line driver and receiver, and carries out Manchester encoding and decoding of data. It is tuned to work at Ethernet's 10 Mbits per second.

Competition in the networking chip arena is hotting up now, fuelled by the realisation that networks needing expensive equipment to connect devices into the net will not catch on for connecting low-cost devices like personal computers. Already deals have been announced between Ungermann-Bass and chip makers Fujitsu, Datapoint and Standard Microsystems, and most recently IBM and Texas Instruments. Mostek is at work on an Ethernet LAN controller for the 68000 family.

But Intel reckons it will beat the IBM chips easily, IBM being perhaps the biggest threat because of the magic of its three letters. "I guarantee the IBM/TI chips will be three years yet," says Intel's data communications component marketing manager Charles Gopen. "If people want to wait three years that's fine, but I don't think they will."

In its push to further Ethernet, Intel has two more weapons – another cost-saving scheme in its Intellink transceiver and cable eliminator, and some LAN data communications software to provide a reliable message delivery service and network management.

Intellink is a Multibus device to join up nine Ethernet workstations and acts like a zero-length Ethernet cable. It gets rid of the need for transceivers and cable, and can link the stations to a main Ethernet cable through a single transceiver.

The software, iNA 950 (for Intel's networking architecture) sits on top of Ethernet in the International Standards Organisation's scheme of things, giving transport control for reliable delivery of messages and network management and maintenance functions. It runs on the Multibus-compatible iSBC 550 board set and is the underlying software for Intel's NDS-11 networked development systems currently running in customer sites.

MAY . . . "Big order book speeds things up".

Irish launch hard disc system in UK

THAT relative rarity, an Irish-owned company manufacturing micros in Ireland, is launching a hard disc machine in the UK this week. The HD5 joins Transtec's BC2 floppy-based system, which has been selling here since June, in the scramble for the still active eight-bit business micro market.

Transtec's managing director, Noel May, who started manufacturing micros in February, feels there is still a large market for the standard style of eight-bit machine – a belief reinforced by a $10 million order for his BC2s from US distributor Leading Edge Products.

Both models run CP/M on a Z80 processor, giving access to a wide range of application packages already written. "Everywhere we go dealers have software they want to sell to us to sell to other dealers," says May.

Transtec sells the floppy machine in a packaged business system for £2,400. This includes accounting, word processing, database management, or financial planning software. The bare hardware comes at £1,395. The new hard disc version is priced at £2,750 for a six Mbyte machine.

Back-up for the hard disc is provided by the built-in floppy drive. And incremental back-up system is used to reduce the time it takes to generate adequate back-up on the floppy. The system logs files opened since the last back-up operation, telling the user which files have been modified and on which back-up floppy they can be found. This way May reckons to bring down the time needed to maybe 10 minutes a day.

May had been importing and distributing microcomputers in Ireland for a couple of years before he was tempted by the financial help from the Irish Industrial Development Agency to start his own manufacturing operation.

Companies to swap designs

SEMICONDUCTOR manufacturers Texas Instruments and American Microsystems have agreed to act as mutual alternate sources for various 16-bit microprocessors and peripheral chips. The two companies will exchange designs and technology for both NMOS and CMOS parts.

TI's side of the deal is to second source the standard members of AMI's alterable microcomputer family, a set of CMOS parts based on the TI 9900 architecture, while AMI becomes a second source for TI's NMOS processors, including the 99000 and 9995.

The agreement is founded on the established links between the two companies. AMI already makes several members of the TI 9900 family, and the new deal is seen as a logical step in extending the relationship.

Micro News is compiled by Robert Parry

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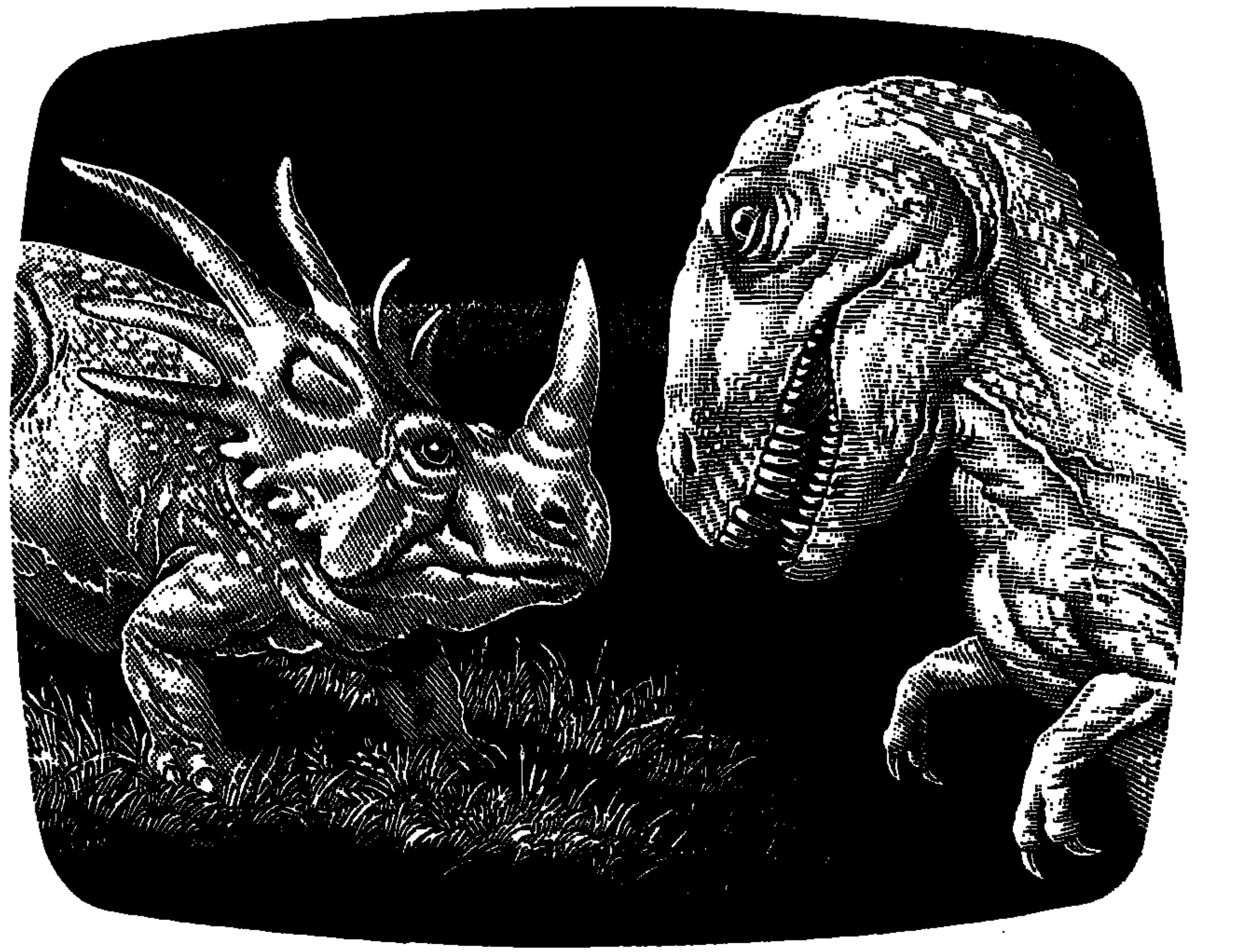

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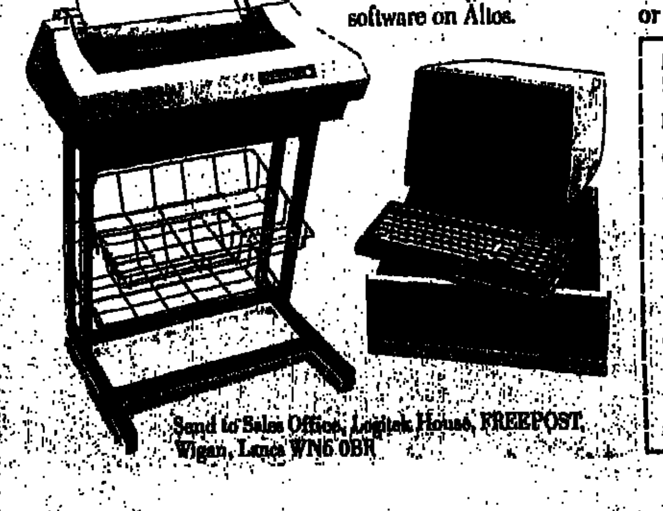

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CPU plans listing for April

JOHNS . . . Long-felt need.

CPU Computers will seek a full Stock Exchange listing early next year, based on forecasted sales of £15 million for 1982/83.

David Johns, joint founder and managing director of the Woking-based computer manufacturer, said that forecast did not include about £2 million in turnover which the company acquired through its recent purchase of the Heseltine marketing operation in the UK.

According to Johns, the Heseltine acquisition fills a long-felt need by CPU Peripherals, a CPU subsidiary, for a successor to its Pentland CRT terminal. "Heseltine supplies a complete range of terminals from a low-end dumb terminal to a top-end intelligent video," he said.

Most of the Heseltine machines are built in Korea and Taiwan, and the company is looking at its markets to cut costs, added Johns.

The Heseltine headquarters at Isleworth will be merged with the CPU Peripherals site in Shepperton, where CPU has already outgrown its facilities. Both groups will be relocated in the same area. "There will be no staff losses. We are on a good growth path and need the people," said Johns.

CPU paid $1 million for the Heseltine operation which will be taken over in stages.

Last year – June 1981 to June 1982 – the CPU group turnover reached £10.5 million, and there was a substantial profit. Full figures are not yet available.

Growth at CPU is based on acquisition, and according to Johns, one of the reasons for going public is to be able to maintain the acquisition strategy by paying for companies purchased with shares rather than cash. The Heseltine acquisition is being paid for in cash.

Johns revealed that the company would offer about 30% of its shares to the public in the placing which is planned for April 1983, a month before the 10th anniversary of the group's foundation.

The story behind ICL's amazing dancing shares

HOLDERS of ICL shares may be slightly puzzled by the shares' recent behaviour.

For some months they have moved up and down within the range of 55p to 66p, following a fairly rapid rise after the last rights issue to 55p from about 30p.

Failure to tender for the central processor element of the Swansea contract moved the shares from 61p down to 57p. News of the confirmation of an American order worth £15 million, combined with meetings between the company and its brokers, sent the shares back through 60p to 64p.

Two things are generally reckoned to have pinned the ICL share in the range in which it is currently fixed.

A lot of brokers took clients into the shares at around 25p last year and, taken with the rights issue, those shares are actually worth nearer £1.

The City is as concerned with trading profit as it is with long-term investment, and the non-traditional holders of the stock, following a good gambling rule of taking a profit when its there, baled out at about 55p to 60p.

The second overhang for the shares is the £50 million of cumulative preference shares which ICL must redeem from the banks next April. Indeed ICL must show in the accounts currently being prepared how that is to be done.

There are many options. The banks could extend the date for repayment by anything up to five years, something commentators feel they should do. ICL could attempt to repay out of existing cash resources, or by accessing the £150 million of as yet uncalled government guaranteed borrowings.

Finally, the company could have another rights issue – in other words, it could offer to sell more shares to existing shareholders.

The City is talking of a £50 to £100 million rights issue pitched between 50p and £1, against a current price of 60p to 66p. The issue at whatever size it comes, may be split into ordinary shares and loan stock. This means that existing shareholders would have to take a significant risk, which is largely why the shares are stuck stubbornly where they are.

Peripherals in the red

by John Aczel

THE UK trade balance for peripheral equipment went further into the red during the early part of 1982 with imports exceeding exports by a record figure. There was a continuing high level of imported deliveries, and this led to a marked imbalance in the sector.

Figures for April, which have just been released, show that the trade deficit amounted to £18.1 million for peripheral products, and there is no sign of this trend being reversed at the moment. For the first four months of the year, the gap widened to £74 million and, clearly, UK manufacturers are facing tough competition from overseas suppliers at present.

Imports of peripheral equipment have stayed high and, in April, the total amounted to £51.6 million, while for the first four months the cumulative figure reached £210 million. Some 89,000 peripheral units came into the UK during April.

Some countries made strong inroads into the UK market, but the US continued to dominate the scene. Its sales to the UK amounted to £30 million, which represented nearly 60% of total deliveries from abroad.

Continental suppliers have been stepping up their sales to the UK in the peripheral sector. In particular, sales by Sweden went up to £1.4 million, while those from the Netherlands topped £2 million in April. France and West Germany maintained their deliveries at a high level and, in addition, there was increasing competition from Japanese suppliers. Their deliveries have been rising steadily, and in April they reached £2.5 million.

In terms of product groups, the biggest sector continued to be storage units of various kinds – imports for these products amounted to £15 million in April. For the first four months of the year, deliveries of storage units were valued at £56 million, a record figure.

For other items, the trend has continued upward. This was noticeable for printers, with their value reaching £9.7 million in April. Imports of VDUs totalled £7.6 million in value that month.

SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry.

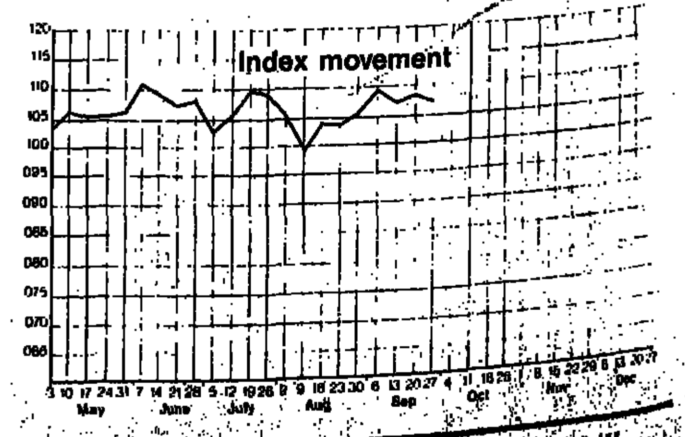
Date 1/10/82 Index 107.46 Change -[illegible]

Pence		London Stock Exchange	Pence	
1982		Stock	Price	C'nge
High	Low			
206	151	ACT (App Com) (25p)	203	+13
197	160	BOC Intl. (25p)	176	– 8
34	18	B. Sov Kent (25p)	34	+ 4
127	101	Chubb (20p)	105	– 2
90	49	Cole Group (25p)	70	– 1
303	180	C.A.S.E. (20p)	180	–13
730	445	De La Rue (25p)	495	– 3
380	235	Extel (25p)	330	– 3
494	312½	Ferranti (50p)	494	+ 4
1237½	797	GEC (25p)	1237½	+12½
64	33	ICL (25p)	62	– 2
47	37	Kalamazoo (10p)	38	– 1
310	223	Kode Int (25p)	267	+ 2
315	216	Memec (10p)	283	– 2
180	110	Muirhead (25p)	178	+ 2
287	216	N'market (1981) ($ 05)	287	+ 3
820	570	Norsk Data	725	+10
450	285	Office & Elect (25p)	450	–
555	445	Philips Lamp (fl10)	547	– 6
580	348	Plessey (50p)	560	+ 3
97	20	Quest Auto (10p)	33	+ 1
606	353	Racal Elect (25p)	590	–15
263	171	Rediffusion (25p)	245	–17
468	360	Thorn-EMI (25p)	380	– 7
83	74	UC&T (50p)	82	– 1
		OTHER MARKETS*		
90	66	Bus Comp (10p)	68	–
205	78	Consuk (C&P) (10p)	195	+10
168	160	Int'europe Tech (20p)	168	+ 1
262	245	Io Tech (25p)	247	–
60	48	Knight (5p)	54	– 1
169	112	Miles 33 (10p)	169	+ 9
170	86	NMW (£1)	120½	–
106	43	Rolfe & Nolan (10p)	106	+ 2
120	76	ScanData (10p)	86	– 4
268	160	Star Comp (10p)	255	+ 6
105	80	Trident Comp (10p)	80	–
112	78	Zygal Dyn (5p)	83	– 2

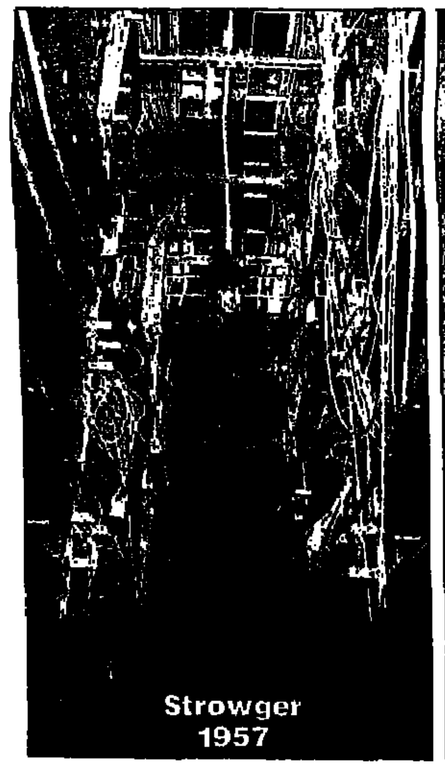
$		US Stock	$	
1982		Stock	Price	C'nge
High	Low			
29¾	18	Amdahl	25¾	– 1¼
20¾	11¼	Apple Inc	18¼	+ ½
28	21	Auto Data Pro	24½	+ ½
38	30¼	Burroughs	35¾	– ½
13¼	7¾	Comp Auto	10	– ⅜
18¾	11¼	Comp Sciences	15	– 1¼
18½	9½	Comshare	12	–
38½	22	Control Data	28¼	– ½
38¾	21½	Cray Research	24¼	– ¼
63¼	20¾	Data General	24¾	– 1¼
48½	11¾	Datapoint	13	– 1
24½	16¼	Dataproducts	22½	– 1¼
87½	62¼	Digital Equip	79	– 6½
34½	19¾	Elec Data Sys	34¼	+ 1¼
6½	3½	Gen Automation	3½	–
38¾	22	Harris	33½	– 1½
64½	38¾	Hewlett-Packard	52½	– 1
84	61½	Honeywell	78	– 4
35¾	20¾	Intel	32¾	– 2¼
78¼	67	IBM	73½	– 2¼
66	38¼	Litton Ind	42¼	– 4½
18¾	9¾	MDS (Mohawk D)	14	– 1
28½	18	MSA (Mgmnt Sci)	28½	– 1
18¾	7¾	Mngmnt Assist	9¼	–
8¾	6¾	Modular	9¾	+ ¼
78¾	50¾	Motorola	70¾	– 3¼
24½	14	National Semi	16½	– 1¼
67½	40½	NCR	61¼	– ¼
28¾	17¼	Perkin-Elmer	23¾	+ ¼
27½	18¾	Prime	23¾	– ½
48¾	29¾	Raytheon	41	– ¾
28¼	14	Signal	18	+ ½
34	21	Sperry Corp	23	– 1½
34½	–18½	Storage Tech	18¼	– 1¼
28½	18¼	Tandem	22¾	[illegible]
36	23¼	Tandy	28½	[illegible]
100¾	70¾	Texas Inst	83	[illegible]
27¼	12½	Tymshare	20¼	[illegible]
39¾	25½	Wang Lab B	36	– 1½
11	7½	Wyly	10¼	– ¼

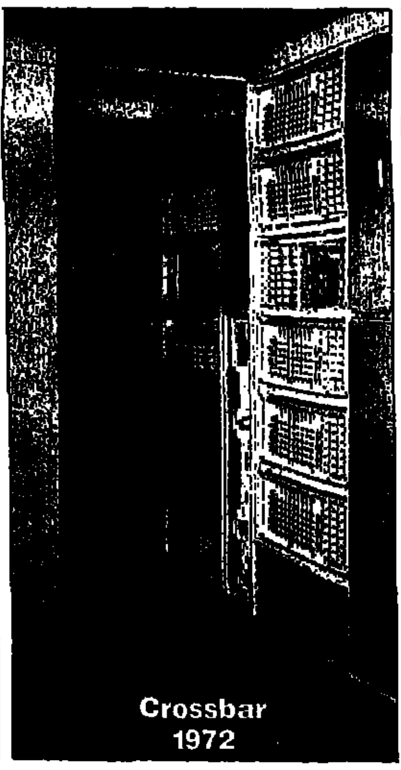
The table shows the closing prices in London on Friday and in America on Thursday. The Share Index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.

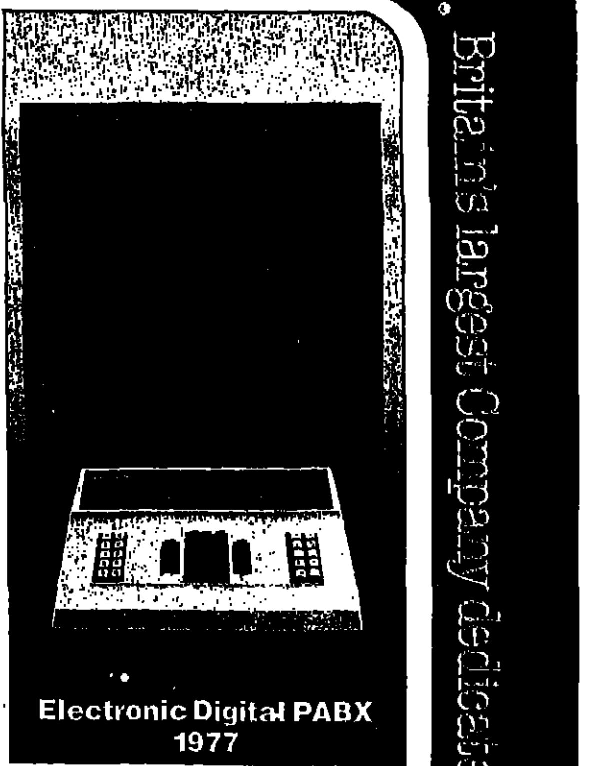
**Shares traded on the Unlisted Securities Market or under Rule 163(2)(a).*

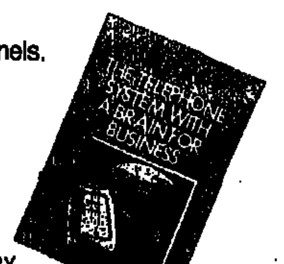


Company News is compiled by Kevin Cahill









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INFORMATION TECHNOLOGY 82

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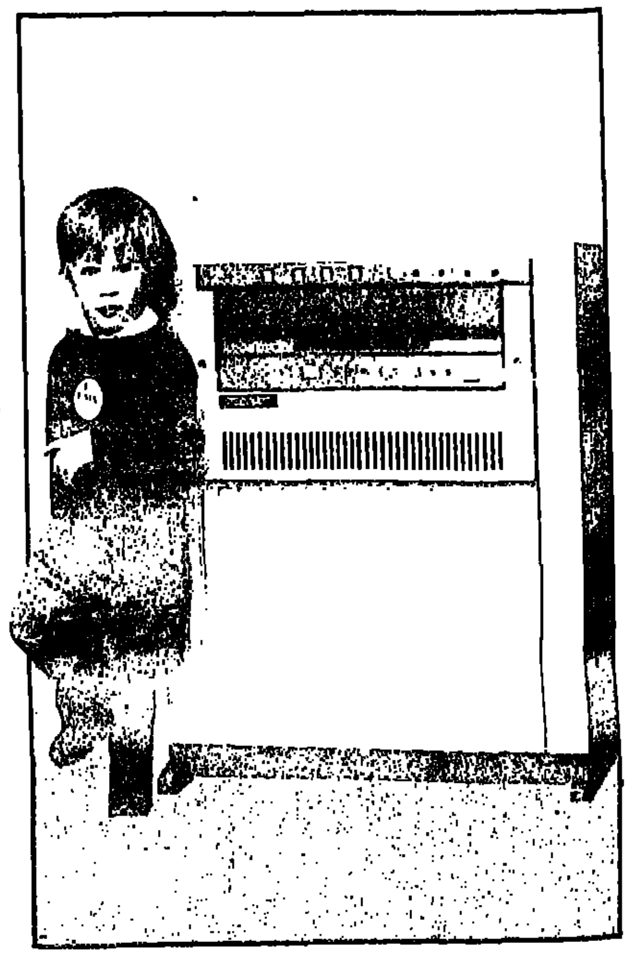

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PERKIN-ELMER

[illegible]

PROFILE

Japanese goal – to kill off current languages

FEW events in industrial history have so excited both the general and technical public as the Japanese Fifth Generation Computer Project. It is an ambitious scheme to give Japan a lead in the next generation of computers, and at the same time to produce machines which will be both self-programming and addressable in natural language.

The project, which began informally four years ago, and went into the first phase of implementation just three months ago, is headed by a diffident professor of electrical engineering from Tokyo University, Tohuru Moto Oka.

Professor Moto Oka was in London last week, and gave a few insights into the current state of the project and the background of the fifth generation.

The first surprise is the amount of money the Japanese government is planning to spend on the first three years of the project, just £11 million.

According to Moto Oka some confusion appears to have arisen in the West over the funding mechanisms used in Japan.

"The project is controlled by a single body called ICOT, which receives money direct from MITI, the Ministry of International Trade and Industry. This money is given to four groups, or working parties. These are the Architecture, Core Language, Natural Language, Theory and Knowledge base groups." According to Moto Oka, this year only £1 million will be spent, next year £7 million and the following year £3 million.

Acknowledging that the project looked underfunded in terms of the £300 million the Alvey Committee is thought to have asked the UK government to spend over the next five years, Moto Oka said that the actual expenditure over three years would be about £30 million.

"Companies like Fujitsu will be providing groups of researchers to the project," he said.

The first laboratory was opened in June, and the ICOT group itself was only constituted in April.

Moto Oka noted that the entire project would be spread over 10 years, and one goal was to try and look beyond the usual company horizon, which he described as "just looking at tomorrow."

Another objective was to remove the researchers from the pressures of company work.

Moto Oka is also leader of a separate Japanese research group called the National Project of Scientific Supercomputers.

For him the link between the two projects is the architecture of the fifth generation machines.

"Up to two or three years ago there was tremendous pressure to keep the Von Neumann architecture and to keep the IBM architecture. This has left us with current computers which are extremely weak in basic functions for processing speech text, graphs, picture images and other non-numerical data, and for artificial intelligence type processing such as inference, association and learning." The effect of this at the end user level is to prevent people from easily using computers.

Moto Oka made it clear that the elimination of current computer languages was one of the goals of the fifth generation machines. "The ordinary user must be able to access and input information to the machine in his own natural language," he said.

MOTO OKA . . . "Just looking at tomorrow".

PLATFORM

Corporate changes mean plum jobs are ripe for the picking

In the second part of his review of the role of the DP manager, Ron Yearsley discusses how to seize career opportunities during times of change.

BECAUSE of the economic climate there is a continuing move towards rationalisation and merger, and some companies prove more aggressive in their desire for acquisition than others.

It could be that an innocent computer manager finds himself acquired by a more aggressive competitor and predator and his job disappears through no fault of his own. In cases such as this it would be prudent immediately upon the success of the acquisition for that DPM to suggest to the new owners that some rationalisation of the joint venture would be valuable and lay his department open for investigation.

He would probably be seen as a co-operative partner in the new venture and at least end up being a smaller fish in a much bigger pond – a fate better than drowning!

The computer manager in all these instances must be seen to be adaptable and to want and encourage change, not only in his own department when he senses the wind of change altering his company's corporate philosophy but also in many other areas of the company, particularly in office automation and telecommunications strategy.

Clearly the enlightened change-oriented DPM can win some prizes. By reducing the pressure on his time as a man manager of a substantial central computing force, he will have the opportunity to grasp two important new areas of the company's systems strategy.

First, in telecommunications strategy there is a need to bring together under one manager voice, speech, data and many other aspects of communications. The company may well have an administration and communications manager with responsibilities which already include the switchboards and company cars. The speech communications part of this administrative manager's activities could profitably be merged with those of the computing department.

Second, the "convergence" of technology means that there is an increasing need for a merger of office technology planning with communications and DP. With the arrival of word processing and attendant devices, substantial sums are being spent or are about to be spent in many firms. It seems logical that the information systems professional at the centre of the corporation should at least have a significant planning and educational role in these new investments.

To combine these functions with those perhaps of productivity services, computer planning and systems development under the control of a systems director or "supremo" seems sensible and a good career opportunity for the ambitious computer manager. There are a number of these "supremo" posts already in existence, in some cases offering salaries of well over £25,000 together with a seat on the board.

It is often a computer professional who occupies this post, but not usually one with a strong "technician" image.

If the DPM is seen still as some obscure technician overtly concerned about changes in hardware technology and guarding his empire with passionate zeal, he will be regarded as a technical vagabond unconcerned with the company's goal of increased profitability and growth.

Although well paid, and usually very differently paid from his peer groups within the firm, he will still be seen only as a necessary evil and in some cases dispensable.

It is vital that the computer manager be prepared to adapt to a changing environment; to identify more with the corporate goals of the company, whatever industry he may be in and try and make himself a "company man" rather than a "computer man".

It might be helpful for the DPM to spend some time in a line role outside the computing function in his career development. This is often very difficult and unattainable, principally because of salary differences between the DPM and his peers. It would also be helpful if the DPM became more acquainted with general management skills – a course at one of the business schools would prove valuable.

Technology and the economic climate have changed dramatically in the last few years, allowing many things to happen which were inconceivable before. This change poses a tremendous threat to the "computer manager", but the many opportunities and prizes are worth planning for.

Ron Yearsley is director of BIS Applied Systems.

DOWNTIME

Old world technology

THIS week's 1984 and all that, our column of the strange things people say about computers, quotes an advertisement for the government's Information Technology awareness programme that appeared in the Sunday Times.

"It's as if everyone suddenly gained access to a whole new part of their brain which they never knew existed," it announces.

And: "If the aeroplane had developed at the same rate you could fly around the world in seven seconds for under £1."

The telephone is likened to jungle drums, and space invaders is bracketed with super glue as examples of how one technological innovation spawns another in a seemingly unrelated area.

The whole ad has an old world, sepia, charm about it. One can imagine reading it with a wistful, nostalgia ain't what it used to be, feeling in 10 years' time.

But an ad floats or sinks on the response it attracts. And I think this one floats.

Whether it makes me take IT seriously is another matter.

Ken Baker takes the wrong turning

KENNETH BAKER, the Minister of State for Industry and Information Technology, arrived at the Sicob exhibition in Paris 20 minutes late because the French Interior Ministry refused him a motorcycle police escort.

Baker's official Rolls-Royce turned up at the wrong entrance to the exhibition hall preceded by a young man on a moped who wore a crash helmet several sizes too large for him.

The youngster had been assigned to conduct Baker by the exhibition organisers after the French authorities decided he did not rate a squad of outriders in black leather uniforms.

The moped lad lost his way in the maze of skyscraper buildings in the La Defense area on Paris' Western outskirts.

Baker expressed no criticism of the French government's discourtesy. Addressing French computer peripherals manufacturers later at a lunch in his honour he said: "Since I'm the only Minister for Industry and Information Technology with the title in the world I must be the best – as well as the worst."

Britain's Ambassador, Sir John Fretwell, was also involved in a hiccup for French protocol. All the guests at the high table during the lunch had huge printed place cards designed to be clearly visible across the room. Sir John's read plain "Monsieur Fretwell."

Counting the bananas

GEEST is best known for its admirable bananas. But among the computer fraternity, perhaps it is the offshoot Geest Computer Services that is most familiar.

Now GCS has made the ideal marriage with its parent – a computer that counts bananas.

The machine has been installed on the Caribbean paradise of St Lucia, where it will be used as Big Brother to over 300 banana growers which supply Geest.

Information on the weight of bananas accepted and rejected by each grower will be used to build a historical database. The reliable growers will then be seen to be those with a favourable ratio of good bananas to bad.

Would not wily growers then supply only good bananas in future? "That is the intention," replies a Geest spokesman. "It will also be used to calculate the premiums paid."

I applaud any move likely to obviate the disappointment engendered by a rotten banana. And let us be grateful that I have resisted the lure of a dreadful pun.

No escape

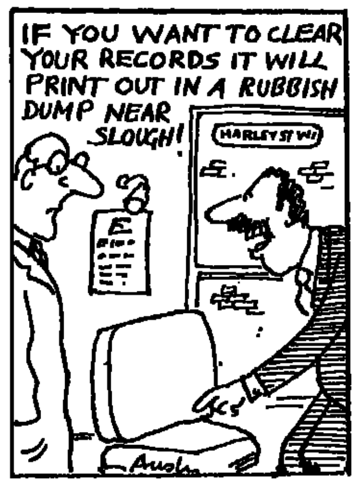
VISITORS to the Sicob exhibition in Paris sought refuge from their brethren, jargon and shop talk at a nearby cafe. But the computer industry is not so easily eluded.

The table napkins were stamped "Zilog."

Applied maths

HOW'S your multiplication? Try 2,966 by 4. What do you make it – 11,864? Me too. But ICL insists that the answer is 2,988. Add four 2966s together and bingo – a 2988.

Probably used VME/B to do the calculation.



IF YOU WANT TO CLEAR YOUR RECORDS IT WILL PRINT OUT IN A RUBBISH DUMP NEAR SLOUGH!
HARLEY ST W1
Austin

Comeback

A PAPER tape reader and punch will be on display at this year's Compec exhibition in November, from GNT Automatic UK. This takes me back to the Compec of 1975, when the first cassette machines for computer use were on display. I asked the salesman of these then new-fangled devices how well they were selling.

"Not very well," he lamented. "People still like to see the punched holes."

Prime cut

A COMPANY which calls itself Prime must be number one in something. So in which field is Prime ahead of the rest?

This rather impertinent question was put to the company by a French journalist on the occasion of the company's latest product launch.

Unfortunately he did not leave it there, but added: "In which fields is Prime concentrating its activities on?" which rather let the company off the hook, because that was the only part our canny PR host chose to translate into English, saying: "The gist of that question was..."

Naturally this was skilfully sidestepped even further by the man who answered the question, re-interpreting it to mean "where we see Prime going" and doing the march-to-glory bit.

If Prime cannot tell us what it is number one in, perhaps some of our readers out there can.

Or should the company change its name?

Converted

THE wandering IT minstrel Ken Baker seems to be getting through to the man in the street at last. "Do you realise," he told an audience of farmers, garage owners, plastic mac manufacturers and the like the other day, "that 50% of British companies have nothing more in the way of information technology than a manual typewriter?"

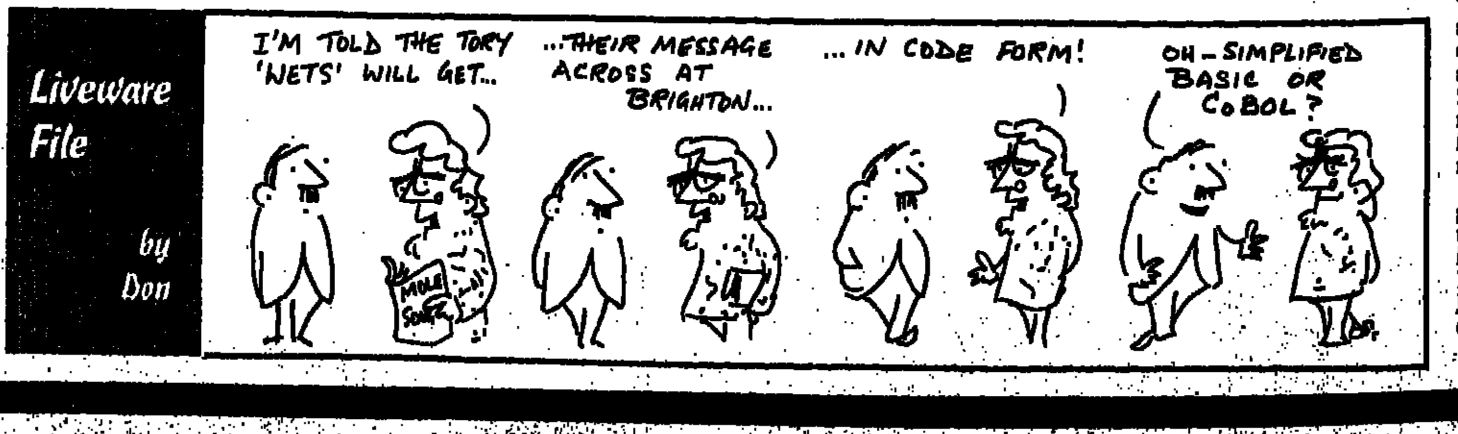
This really got home to one garage owner. "I was really interested in what you said," our instantly-converted friend told Ken afterwards. "And tomorrow I'm going straight out to buy an electric typewriter."

Chad

10 YEARS AGO

From Computer Weekly of October 5, 1972.

A databank of information on over 500,000 non-industrial civil servants was to be established by the Civil Service Department. Code-named Prism, the service would be based on an ICL 1904S . . . ICL spawned another variation of its 1900 range – the 1903T . . . With 50 exhibitors and 5,000 visitors, Compec 72 was an undoubted success.



Liveware File
by Don
I'M TOLD THE TORY 'NETS' WILL GET...
...THEIR MESSAGE ACROSS AT BRIGHTON...
...IN CODE FORM!
OH – SIMPLIFIED BASIC OR COBOL?

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, October 7, 1982

Japanese threat can be met

A SENIOR computer industry figure last week pronounced Japan "a major threat to the Western industry". He cited three reasons why this was so: productivity, quality and the accelerated rate at which Japan makes use of new technologies and techniques.

At the same time, a group of journalists were being told by a Japanese industry executive that Japanese semiconductor manufacturers did not go through "the traditional experimentation process" with a new device. He said Japanese chip-makers made decisions about mass production as soon as product feasibility had been established.

Couple this to the longer pay-back period on investments by the Japanese financial markets, and you have, in a nutshell, the reasons why the Japanese have brought the American chip companies to their knees.

But there are other rumours from the Far East these days. Senior Japanese economic advisers are now trying to convince their European and American counterparts that all is not sweetness and light in Japan: that economic growth is slowing at an accelerating pace and domestic markets are rapidly becoming saturated.

All this places further pressure on Japanese companies to export, and the growing fear in the West is that the tide of cheaper imports which has shaken the domestic motor and consumer electronics industries will be repeated in the microelectronics and computer markets.

Japan does provide a major threat. But as CDC Peripherals' president Tom Camp, quoted in the first sentence above, said, it also provides the means by which Western industry can be competitive. The example is there. It is a success.

Japan has shown us what to do. It is up to us to go out and do it.

Kicked out of court

THE legal point on which the US judge dismissed part of the IBM "Japscam" case is central to the whole issue of conspiracy. The charges against three men accused of conspiracy to steal technical information from IBM and to sell them to IBM's rivals were kicked out of court because both IBM and the Justice Department, which is prosecuting the case, refused to reveal details of how they co-operated to catch the alleged wrongdoers.

Just why this refusal came about is already raising questions as to the exact relationship between IBM and the FBI, and naturally, if not unjustly, the questions tend to reflect badly on the relationship.

It has been repeatedly said by the defendants, their allies and even by some interested, but independent observers, that the case is a clear example of entrapment, that the defendants were enticed to commit a crime. This has not been proved, nor does the dismissal of charges against the three men alter this. It does add fuel to the argument, however.

It is important here to remember that American law differs substantially from UK law on this matter. In the UK, entrapment is forbidden, and prosecutions will not ensue where it is proven to have occurred. US law is not so strict.

Whatever happens, the dismissal of the case poses a serious threat to IBM's civil action against Hitachi, National Advanced Systems and National Semiconductor. The criminal case, in all its manifestations, could be dismissed completely.

The civil case would still stand on its own merits, since it deals with the general principle of the misuse of confidential data going back to mid-1980.

But the loss of the criminal cases would pose a serious loss of credibility to the civil case.

The Judge's decision raises profound questions as to how the indictments came about. And if the cases founder because of entrapment, or because of the refusal of the prosecuting parties to reveal their exact relationships, then IBM will have some very serious points to clear up with the computer industry as a whole.

1984 and all that

THIS week's example of the strange things people say about computers was sent in by Cecil Marks of Banstead, Surrey, who wins £5.

> **Now you can buy a home computer for under £50 that plugs into a portable TV. It can do complicated tasks which as recently as 1962 would have required a computer the size of the Albert Hall. That's IT in action.**
>
> *Advertisement in Sunday Times*

LETTERS

'The mainframe is here to stay'

AS Sperry-Univac does not have a distributed intelligence micro-based system to offer, other than the UTS400, it would be surprising indeed if Bill Read advocated their use within a DDP network. However, several statements in his article (CW, September 23) highlight many of the philosophies advocated by my company, TechnoLogic.

The mainframe is here to stay. The investment in database, the accumulation of corporate information over many years, is far too great to attempt to fragment and there will be a growing need for more rapid access to corporate information. But surely he recognises the need for local databases, is he really suggesting storing these centrally and accessing them from unintelligent terminals over telephone lines?

According to most reliable surveys, the market share for the mainframe computer is shrinking. However, we agree that users are calling for faster and easier access to information and using micro systems to satisfy their requirements.

The expanding company frequently finds it has a splintered unco-ordinated information source. For this reason, we advocate the use, and only sell, systems that can communicate and network with large recognised mainframe systems, including Univac.

Certainly the mainframe computer of the future will handle the large number crunching activities but it will also control the network surrounding it.

Office automation certainly needs a powerful and flexible processing capability but it certainly does not need to be central. Quite the opposite.

Production systems, CAD/CAM and process control again can be performed by mainframes but are better performed away from the mainframe, leaving it to perform the functions for which it is best suited.

Finally, the forecast on personnel costs for the future is probably very accurate. It therefore follows that the terminals used by those personnel should be very flexible and have a wide range of facilities.

PETER DAVIES
Sales and marketing director
TechnoLogic,
Wrexham.

No false start

YOUR article on Positron Computers (CW, September 23) stated that we had a "false start" in the business market by originally appointing Shaw Business Centres as a national distributor, then "parting company" because Shaw could not provide a satisfactory level of customer service. This is totally wrong. We had always planned from the start that we would appoint our own business systems dealer network, when our products had been proven in the field in other areas.

Our first system was delivered in October 1981. In June of this year we started to set up a network and Shaw was one of our first dealers. We also appointed Ian Kendrick as dealer sales manager. At present Shaw is undergoing some internal re-organisation, and following that we anticipate renewing our relationship with the company as we are satisfied that it is fully competent in the business systems field.

PETER LOFTUS
Marketing director
Positron Computers
Newton-le-Willows,
Lancashire.

Editor's note: Comments that Shaw had not provided Positron with an acceptable level of customer support came from Positron's technical sales manager. Positron has since made clear that the problems were only with one site, and it did not intend to cast any doubt on Shaw's overall performance. On the basis of further discussions with Positron we accept that no suspicion should be cast on Shaw's competence in the business systems field.

Micro finance

IN HIS article on financial modelling software in Software Month (CW, August 12) Paul Fisher states: "A package like Visicalc is not able to draw numbers out of the company's database, nor can it dump altered numbers back on file when it has finished them. Such applications are not yet suitable for local micro systems."

I would like to draw readers' attention to the fact that a financial modelling package is available for use on microcomputers using the Oasis operating system (eg Onyx, Altos etc.), which does access external data files. The product is Masterplan by Phase One Systems Inc and is available from several companies, including my own.

G. J. JARVIS
Managing director
Farmdata,
Aberdeen

Unacademic

I AM sure that A. C. Kilgour's acronym to explain the "meaning of Pascal" (CW September 23) provided much amusement in the Pascal community. However, I really cannot let the implication, that Pascal is a language purely for academics, go unchallenged.

The majority of the UCSD Pascal Users Society's 2,000 members are from the non-academic side of the industry. Of the society's 220 UK members only 60 are from academic institutions (including me).

MARK WOODMAN
Membership Secretary
USUS (UK)
Milton Keynes.

Suppliers

I should like to point out that Trend Communications was not the supplier of message switching gear to Chevron (CW, September 2). This equipment was in fact supplied by ATS (Communications) of Haywards Heath. Trend was the supplier of teleprinters used on the Chevron system.

PETER COWLEY
Marketing manager
Trend Communications,
High Wycombe, Bucks.

Solution for schools

IN his Platform article (CW, September 16) John Barnes wrote that "There are tremendous economic pressures just to teach Basic" at the school level, and asked "What else is readily available at low cost?"

The answer to his question is CBM Comal 80, described by its originator Borge Christensen as the best implementation available on any machine. But its most remarkable feature is that Commodore has placed it in the public domain worldwide. Anyone wanting a copy simply has to apply to the Comal User Group, enclosing a blank disc (or cassette) with payment for return postage and a note of their hardware configuration.

The group meets from 7 to 9pm on the second Wednesday of each month at Islington Community Computer Centre. Anyone wanting to find out more about the benefits of a language that combines the simplicity of Basic with the control structures of Pascal is welcome at these meetings.

JOHN COLLINS
Islington Community Computer Centre,
Polytechnic of North London.
London N7.

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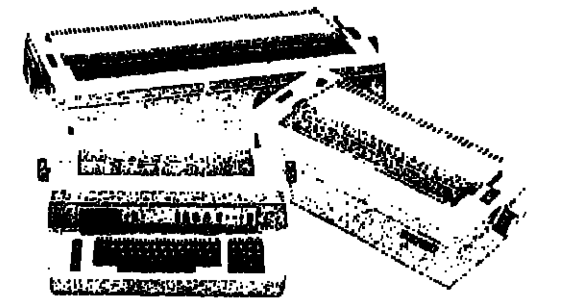

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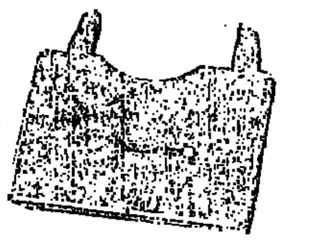

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PEOPLE

MD named at Exxon Office Systems

EXXON Office Systems UK has appointed **Patrick Regester** as managing director. He replaces **Spike Kasper**, who has joined Burroughs in the US.

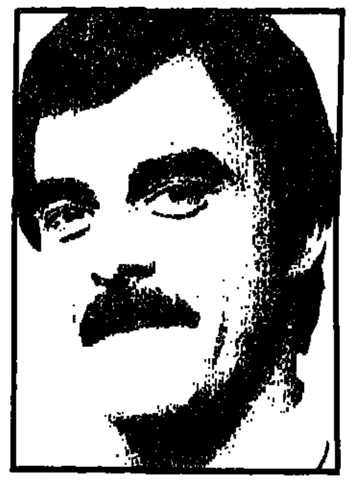
Regester has been with the Exxon group since 1976, joining as a marketing representative for Vydec UK. He went on to become a sales manager, then branch manager for London and later national sales manager, a position he held until his promotion to MD. Vydec changed its name to Exxon Office Systems in 1981.

Before joining the Exxon group, Regester was in sales and marketing with Interscan Data Systems, following a career with a merchant banker.

■ **Graham Hurley** (above) has joined Itel Software systems as technical support consultant. He has spent the last two years working with Data General equipment for Helena Rubenstein.

■ Following the recent formation of Priam Europe, the two men appointed to try to make it succeed in the European Winchester disc market are **Jim Jones**, who becomes general manager, and **Ian Hearne-Philips** who takes on the position of technical support manager. Jones was formerly European manager with Pertec International, and Hearne-Philips was previously with Tandon International as technical support manager.

■ Technical director in charge of the control and communications department at WS Atkins and Partners is **Ian Barnard**. He was formerly chief engineer, instrumentation and control, in Atkins' engineering and industrial processes division.



■ Computer Associates has appointed **Michael Kontor** (above) systems engineer. He has been an operations consultant for the last 16 years in Canada, Australia and Saudi Arabia.

■ Software firm Autofile has appointed **Christopher Cundy** director of microcomputer sales. He was formerly general manager for the South-east selling region of Systime.

■ Account support co-ordinator for Pertec International is **Hammond Matthews**, formerly in a similar position at Pertec International's peripheral division marketing services department in California.

■ Norwegian computer manufacturer Norsk Data is expanding its UK activities in defence sales and technical support, with the recruitment of two more sales executives and one pre-sales support executive. **Brian Carter** becomes head of defence sales. He previously worked for BOC Datasolve, Sperry Univac and Texas Instruments. Joining from Ferranti as a sales executive is **Jonathon Bennett**. **Mike Cornelius**, formerly with Tektronix, is appointed pre-sales executive.

■ **Steve Richardson** has rejoined Rediffusion Computers as Midlands sales manager. He originally joined the company in 1978 as a systems analyst for the Midlands branch, but left in 1981 to work as a senior sales executive at Datapoint. Joining Rediffusion's London office as a systems analyst is **Alan Springford**. He was previously with AGB as an analyst.

■ New marketing director at CPU Computers is **Ernie Jones**, who joined the company just over a year ago to re-organise and expand the peripherals side of the company's business, CPU Peripherals Ltd.

■ Latest addition to the expanding sales force at TDS is **Rob Keywood**. He was formerly in support and selling with Quest Automation.

■ As part of a restructuring of the company, **Peter Cornick** has been appointed managing director of Davy Computing, with overall responsibility for the affairs of the company. Cornick was previously marketing manager of bureau UCC.

■ The Business Equipment Trade Association has formed a wholly-owned subsidiary company Beta Exhibitions, to handle exhibitions and conferences previously run by the Association. Chairman of the new company is **Larry Lewis**.

■ **David Rimmington** (above) has been appointed systems consultant at MSA (Management Science America). Previously with GEC Switchgear for four years as information controller, he also has five years' experience as a development engineer, with British Aerospace and Sintef.

■ **Warren Werblow** of Scicon Consultancy International has been appointed to the Council of the British Information Technology Export Organisation – ExportIT.

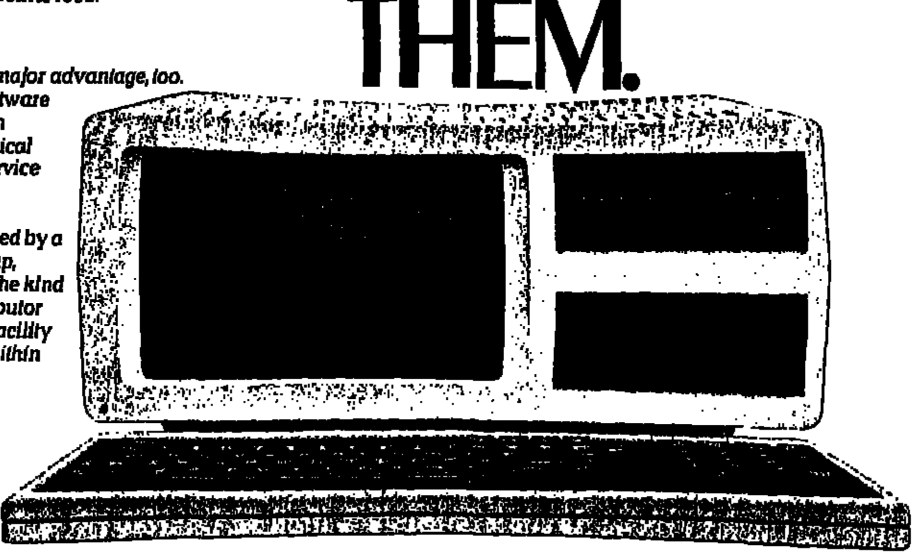
■ The Computing Services Association has named **Peter Thomas** of Pactel as president. F International's managing director **Alison Newell** has been appointed vice-president. Honorary treasurer is **Jon Measures** of the Teleprocessing Computer Centre, a new member of council. Other new members elected to serve on the CSA Council are **Michael Haughton** of Langton Information Systems; **Clive Telford** of AIM; and **Warren Werblow** of Scicon Consultancy International.

■ Two senior appointments to the international management team at the Racal Data Communications Group have been announced. **Paul Lewis**, formerly group financial director at Betsobell, fills the newly-created post of financial director. **Tim Holley**, who becomes managing director of Racal-Milgo, previously spent 20 years at ICL, including five years as MD at Dataskil, and latterly as director of ICL's application systems and services.

■ Data Type's expansion programme will be headed by **Brian Wildeman**, who has been named managing director. He joins the company from Penny and Giles where he was general manager and chief engineer.

■ **David Huntingdon** has been appointed to the board of Thorn EMI Datatech with overall responsibilities for the company's marketing, sales and service operations. He was previously marketing manager of the company's data products division.

■ Cable and Wireless UK has appointed **Barry Poffley** as sales executive for Southern England and South Wales. He was previously an information systems specialist at AB Dick (GEC).



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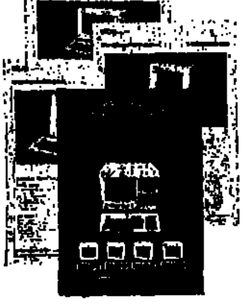


DIARY

OCTOBER 12

Visit to Thames Valley Police Computer Centre. IDPM West London to Oxford branch. Thames Valley Police Computing Centre, Kidlington, **Oxford**.

OCTOBER 13

Computer Graphics. IDPM Sheffield branch. Sheffield Twist Drill, Computer Suite, Cemetery Road, **Sheffield** 11. Contact Steve Tedd on 78633. 7.00.

The last and next 25 years in computing and the BCS. BCS Bristol branch St Vincent's Rocks Hotel, **Clifton**. 7.15.

OCTOBER 14

Rigorous software engineering. BCS Software Engineering Group. Large Chemistry Theatre, Birkbeck College, Malet Street, **London**. 10.30.

The need for and means to obtain greater protection. Ted Cluff and the NCCL. IDPM Essex branch. County Hotel, Rainsford Road, **Chelmsford**. 8.00.

OCTOBER 19

Visit to London Air Traffic Control Centre. BCS North West London Branch. Numbers limited. Contact Frank Rich on 01-864 5311 ext 2359 to reserve place.

OCTOBER 21

Visit to British Leyland, Longbridge. BCS **Birmingham** branch. 10.00. Please note revised date and time. Details Martyn Davey on 021-743 4222 ext 2234.

Computer privacy and a data protection law. Speaker Pat Hewitt, NCCL. BCS London Branch. Charing Cross Hotel, The Strand, **London**. 6.00.

OCTOBER 29

Jubilee dinner. BCS Birmingham, Coventry and Wolverhampton branches. The Council House, **Birmingham**. Tickets limited, so apply early to Martyn Davey on 021-743 4222 ext 2234.

Talk by the Rt Hon George Thomas, MP, Speaker of the House of Commons. BCS and other professional associations. Town Hall, Cheltenham. Apply early to D. Went on Gloucester 416301.

JANUARY 5-6

Viewdata. Conference on the state of the art. Institute of Information Scientists WP and computer information special interest group. Details Mrs Bird on: (051) 645 2000 ext 8611.

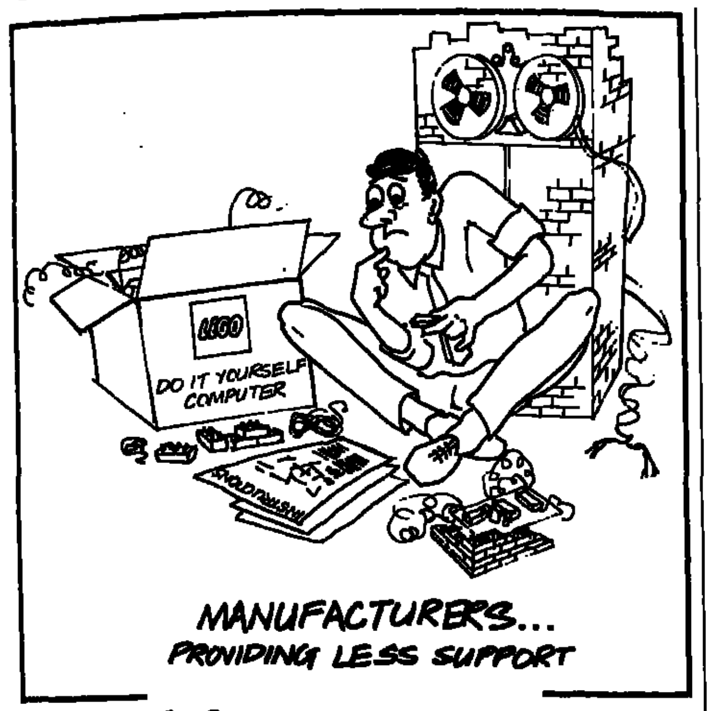
CONFERENCES

■ As part of its jubilee celebrations, the **BCS** is holding a conference entitled Information Technology – Your Next Investment. It aims to examine the key issues affecting the future development of information technology. The keynote speech will be delivered by the BCS patron, the Duke of Kent. Fee is £120 + VAT, £85 for BCS members. Details from Trenton Presentations on 01-680 7525. Also planned by the BCS is a tour of IBM's UK research facility, including a laboratory overview, computer graphics, colour displays, CAD/CAM in development, graphics in publication and human factors. Organised by the Displays Group, it will take place on November 24. Details Ray Earnshaw, University Computing Service, Leeds University LS2 9JT.

■ **Cocking and Drury** will run a one-day technical seminar about APL2 on November 4. Most of the day will be spent on features of the language, though two short sessions will deal with the relationship between APL2 and other implementations, and the implications of APL2 for IBM installations. Fee is £100 + VAT. Details from Alice Ingle on 01-493 6172.

■ As the cost of buying minis and microcomputers has decreased, usage has become widespread. But like mainframes, they need a secure environment – confidentiality of a company's data must be ensured. BIS Applied Systems is presenting Security for Minis and Micros, which aims to identify the threats to such systems and the ways of combating them and formulating effective contingency methods. The workshop is designed for users of small business systems and personnel responsible for office automation. It takes place in London on November 8 at a cost of £150 + VAT. Details from Cherry Bigmore on 01-267 9237.

WORKPLACE



User grapevine bears fruit for Honeywell

GOOD transaction software is easier to develop if the maker of your hardware has already written half of it. This is the philosophy behind Honeywell's TPS6 transaction processing system, which runs on its new DPS6 range of minicomputers, and on the preceding Level 6 range.

Large organisations such as Gallahers and National Freight Corporation have had TPS6 tailored to their needs, and Xerox in cohort with Honeywell developed a warehouse control system based on TPS6.

Honeywell has its own high level language called Screenwrite to develop TPS6 applications. But unless your name is IBM, there is danger in hatching all your eggs from a proprietary language, and Honeywell also supports Cobol for applications development.

Nevertheless Screenwrite has achieved a certain popularity, and there are a few jobs for Screenwrite programmers being advertised outside Honeywell.

According to Honeywell's minicomputer software group manager Malcolm Murdoch, TPS6 gave Honeywell UK valuable kudos with its US parent. "It was originally conceived for UK and Europe only," he says. In 1979 it went over to the US, and now the UK-developed product is central to the worldwide marketing strategy for the DPS6 minicomputer range, which is fast overtaking Honeywell's mainframe operation.

Murdoch and product consultant Robin Rankine praise Honeywell's close attention to user demands for the success of TPS6. They believe that the grapevine of the user bears copious fruit – which is picked by a systems group established in Honeywell's Hemel Hempstead complex.

The systems group liaises with the user, and at the same time marketing people feed back requests for features from individual users. TPS6 has a restart and recovery option which restores a database to the condition it was in before a user made changes to it. This, declares Murdoch, was implemented much sooner because of pressure from users.

New innovations rarely come from users, according to Murdoch – more usually demand simply speeds up the implementation of certain features.

Feedback also comes from Honeywell user group meetings, but normally only results in relatively minor tailoring, such as a new Screenwrite verb.

Honeywell has a quality assurance group which is also responsible for software maintenance. Murdoch believes this encourages sound software since the group has a vested interest in getting it right first time. Failing this, the same people have to darn the holes later.

Honeywell freely admits that it is not a trail-blazing company. Let others break the ice, and then sail the open water seems to be the philosophy. But there is now some effort to speed up new developments. A software research group of four has been set up in the UK to watch such frontiers as expert systems. Co-operation with similar groups at Honeywell's Toronto, Minneapolis and Boston subsidiaries avoids duplication.

The development people are now housed in a new £4 million operations building in Hemel Hempstead. Testing of hardware is also carried out there, and there is a three-shift team of seven operators.

A series of new announcements can be expected from Honeywell in the next year. Many of its users have already heard of the new dual-processor resilient version of the DPS6 minicomputer, which has yet to be formally announced.

Making sense of job titles

Les King continues his series on changing job functions and titles.

ONE of the most difficult problems in recruitment is making sense of job titles whose meanings vary from place to place and from manufacturer to manufacturer.

For example, Computer Manager could be interpreted as either Operations Manager or as Data Processing Manager, while an advert for Analysts will always do better than one for Systems Designers, a confusing title whose holder is usually perceived as some kind of low-level hack.

The term Systems Engineer has a very specific meaning to a computer manufacturer, particularly to ICL and IBM, while Computer Users Year Book sees the title as equivalent to that of Systems Analyst, and some advertisers expect response from candidates who earn their living wielding a soldering iron.

In its most common usage, the term Systems Engineer is the person who works for a computer manufacturer providing support for both the sales force and to customers.

Fifteen years ago, when most computer users were "first-timers", support was provided directly with systems engineers taking responsibility for basic systems design, programming and training of customer staff.

Working on the principle that "in the land of the blind, the one-eyed man is king," these old-time Systems Engineers exercised enormous influence over technically-unsophisticated management and were frequently "poached" for senior jobs well beyond their experience and capabilities.

Today, with the major manufacturers providing rather less support (and most microcomputer manufacturers providing none at all), the Systems Engineer's principal task is the support of the sales force.

In the case of first-time users, the Systems Engineer does quite a lot of initial systems work in order to define the basic structure, and throughput, of applications.

Because pre-sales effort is highly speculative, the Systems Engineer must work quickly and would typically complete a basic systems design and sizing task in less than a week.

However, when the proposal is presented, the Systems Engineer must be well enough informed to answer any questions the customer might ask.

In addition to the planning and sizing of upgrades, post-sales work involves support in sorting out particular problems and generally keeping customers informed about new hardware and software releases.

Nowadays, only the largest and most pretigious sites merit a full-time Systems Engineer (sometimes called an Account Manager) and support is usually provided from a 'pool' when specific expertise is required.

Working for a manufacturer has a number of distinct advantages, not least of which is the high level of professional training covering such areas as systems analysis, sizing and project management.

Typically, a Systems Engineer will receive up to six weeks' full-time formal training each year and at least one manufacturer has a well structured development program for graduates spanning two years (including quite a bit of actual work, of course).

Given the fickle nature of some employees, it might appear strange for manufacturers to make such an investment in training although they seem to consider that anybody leaving to join a user will continue to support the cause and promote the hardware with which they have become familiar.

Additionally, most manufacturers have a surprisingly tolerant attitude to people who leave only to return a year or two later and I personally know a number of individuals who have worked for the same manufacturer several times.

Because they work within a company whose business is computing, career prospects for Systems Engineers can be quite varied, although the most common move is to the management of a large account or into some form of full-time sales and marketing role.

Experienced Systems Engineers are also extremely attractive to rival manufacturers

Workplace is compiled by Philip Hunter and Andrew Thomas.

PUZZLER

TWO simple peasants of the Nile Valley pool their resources to buy a circular grindstone in the local bazaar. They live several miles apart, so by mutual agreement the older man takes the stone first, promising to hand it over to his partner when half the circle is worn away (ignoring the small hole in the centre).

Neither peasant has any formal education, but they do have the traditional measuring tools of the ancient Pharaohs – a stake and a length of rope. How is the halfway stage to be calculated?

It all boils down, in modern parlance, to the job of constructing one circle half the area of another – using compass and straight edge only.

See page 53 for solution.

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DATA STORAGE

IBM will be the leader in applying technology

Martin Banks looks at role of IBM and PCMs in developing new methods

IBM never speculates publicly on future products. Its inbred reticence has even been known to cause it to hesitate when asked for an affirmative to the question "Does IBM make computers?"

It is a reticence that has spawned as a direct byproduct a whole industry of "IBM observers" – people who are paid, one way or the other, for their thoughts, opinions and/or knowledge of what the Great Blue Giant may be up to.

Some manufacturers, especially those in the lucrative plug-compatible business, employ their own IBM observers. These are normally skilled people who are able to combine what is known about a technology with what is known about where IBM "ought" to be going with its products. If the combinations look promising, then that may be where the giant will go.

"No-one knows for sure what IBM will do in any product area until it makes its move. All we can do is guess," said Bill Martin, manager for systems architecture, with Control Data's peripheral systems group based in Minnesota. That job title is a long way of saying he is CDC's IBM-watcher in the area of peripherals – particularly storage peripherals.

Not surprisingly, he has one or two opinions on the directions IBM is likely to take in the storage peripherals business over the next 10 years. These directions will be decided by market forces and the technology, with the latter moving towards a possible break from its dependence on magnetics in disc or tape form.

Although such a change has been predicted before, both with charge-coupled devices and bubble memories, Martin feels that the optical disc will lead the slow move away from magnetic media.

MARTIN . . . "No-one knows for sure what IBM will do."

"All the manufacturers will stick to magnetic systems for the next five to ten years, especially in the large disc systems," according to Martin.

"But I expect to see in the 1986 to 1988 time period the emergence of the optical disc."

Martin expects the application of such systems to be led by IBM, although the technology may come from another source. The Blue Giant's desire for leadership will come from the fact that the first company to launch successfully such a system will, by the nature of the equipment, set the standards of how they will be integrated with operating systems and applications software.

Martin believes that the first products to utilise the optical disc will be small, desktop computers, probably used for applications such as word processing. "This is compatible with people's perception of the optical disc," he said. "Because the technology allows only one write function on a section of disc, with no erase and overwrite facilities, people tend to think of them as archival systems."

In fact, Martin sees them being used as magnetic disc replacements that have considerable advantages. "They can be used to derive generation data groups like father/son file structures, where any modification of an existing file means that the new file sits next to the original on the disc. The capacity of the discs, and their cost, makes this economic," he explained.

Martin expects that discs costing about $10 each will hold 2,000 Mbytes a side, with double-sided recording available.

Such sheer brute capacity will allow users to maintain economically an "audit trail" of back-up files, and because of the "write-once" nature of the technology the reliability of storage will be greatly improved.

> **'There is still a great deal of life left in the old technologies'**

"There is a major problem in computing, and that is how to recover from system failures, especially where large online storage systems are used," said Martin. "With optical disc systems, there is no possibility of dumping data inadvertently during a failure, so files can never be lost."

Martin reckons it will be near the end of the decade before optical discs are applied to large mainframe computer systems, and here everything will depend on what IBM does, and when.

"For larger systems, where the storage will be operating at data rates of perhaps three to six Mbytes per second, the application of optical discs will very much depend on IBM," he said. "It will be geared to their response to software requirements, and on the development of the bigger communications channels needed."

Although it is the new technologies like optical discs that tend to grab the headlines, there is still a great deal of life left in the old technologies, such as tape storage. It is a technology that has been an intergral part of computing since the early days of the industry, but it is the source of considerable speculation. This centres around what IBM is planning in the field. Bill Martin admits to confusion about the subject at present.

> **'Magnetic discs will have a very significant role to play in the future of computing'**

The cause of that confusion is a new tape system called Del Oro.

"This is the name that has been given to a new tape system that IBM is rumoured to be working on, but at present it is not entirely clear what form this tape system will take," said Martin. "The confusing point is that some of its characteristics are changing."

The changes in characteristics are not minor – they seem to indicate different products for markets. This can make life difficult for a company like CDC to introduce a compatible product quickly enough.

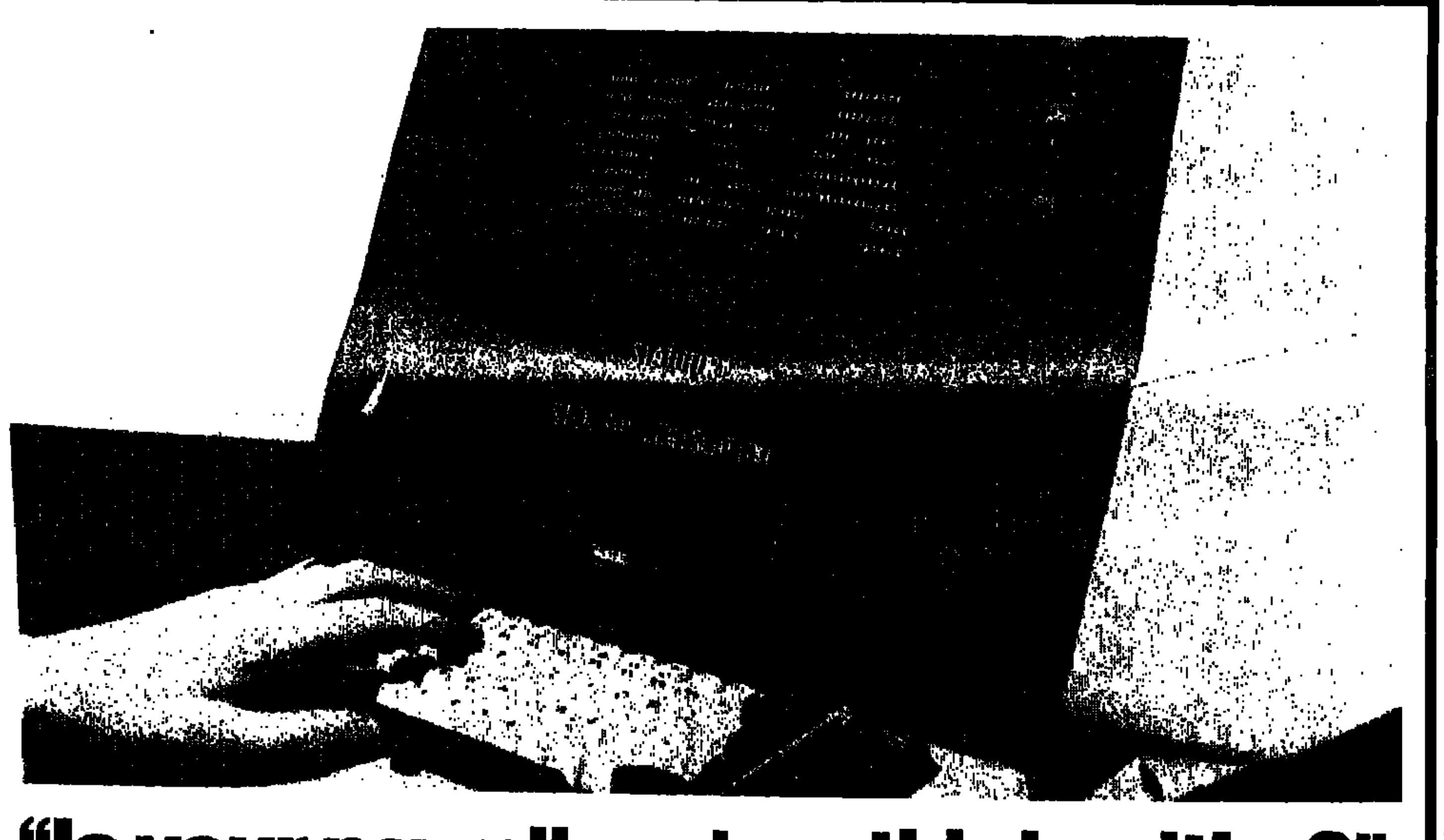
Two distinct definitions seemed to have emerged so far for the Del Oro tape, according to Martin. Both will be cartridge devices, though their applications areas seem to be different. Martin sees the first as a replacement for the 3420 system from IBM. This provides 125 Mbytes to 150 Mbytes capacity on 18-track tape, in a cartridge measuring 4 × 4 × 1 inches. The second would be in a larger cartridge measuring 8 × 12 × 1 inches, and would store 630 Mbytes on its 18-track tape.

The major difference, and the one that marks the different applications areas, is that the smaller unit would be designed for the start/stop operations necessary for batch processing work, while the larger would be a streaming tape system intended for disc archiving functions.

"At present, no-one knows what IBM is planning in this area," Martin said, "but at CDC we think that tape systems of this type will be significant products in the future, so we are establishing our technology."

There is also still a great deal of life left in magnetic disc technology, according to Martin. Although they will not compare with optical discs in terms of capacity, magnetic discs will have a very

■ Turn to page 18



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Bubble memory proved a disaster area for many manufacturers . . . . . But Chris Thornton finds it still has support

Who's forever blowing bubbles?

SPORCK . . . "The bubble memory business is not projected to reach previously anticipated levels."

AS THE TREND towards smaller computers has accelerated, manufacturers have been searching for better memory devices to replace existing disc and tape systems.

Four years ago Plessey's then product manager for memories, Ian Chapple, predicted that the market for bubble memories would today be £250 million – a meteoric rise from the £5 million a year it was worth at the time.

"No major manufacturer of computer equipment will be able to avoid using them," said Chapple. "They will be used where reliability is important and where you don't want a removable memory. The opportunities are limited only by the ability of the industry to churn them out.

"The main applications," he said, "will be in military and telecommunications equipment."

But a year later Plessey decided to stop making its bubble memory device and to concentrate instead on making board-level systems. In other words Plessey decided to build and sell systems bought in from other manufacturers, notably Rockwell, which was later to stop making the device itself.

At that time, March 1980, Plessey said it never intended to sell bubble memory devices in volume to outside customers.

"We were really shipping our systems at very much less than they actually cost to impress upon our customers that we were already far ahead and that we understood what bubbles were all about," said Chapple a few months later.

In fact Plessey was behind the US competition at the time – companies like Rockwell, Intel, Motorola, Texas Instruments and National Semiconductor.

Of those only Intel and Motorola are still interested in bubble memories, and last June the two rivals took the unprecedented step of making a cross-licensing and technology exchange deal for bubble memories.

So what happened to the £250 million bonanza that so many were scrambling to share?

When National Semiconductor announced it was pulling out of the market in August 1981 its president, Charles Sporck, said: "We recently announced a review of capital spending and other expenses during this period of slow semiconductor business activity. To keep spending in line with sales, and since the bubble memory business is not projected to reach previously anticipated levels, National is discontinuing production." National's sales were under $1 million a year.

These days the bonanza is still a pipedream, but it's the Japanese who are indulging themselves.

One of the reasons Intel and Motorola gave for pooling their resources was to fend off the increasing Japanese domination of the market. The two companies, together with Plessey, still think there's a long-term future for bubble memories, and at Compec Europe earlier this year Plessey showed a 24 Mbyte mass memory system, based on one Mbyte bubble memory chips, and asserted "there is a long term future for bubble-based systems in replacing hard disc systems."

Before the bubble memory bubble burst, manufacturers were hopeful that the technologists would prove to be the most potent threat yet to traditional moving media like tape and disc.

The technology was invented by scientists at Bell Laboratories in 1967. The bubbles are magnetised domains in a thin film of material of an opposite polarity, and they are formed by applying a magnetic perpendicular to the magnetised film.

The presence or absence of such a domain constitutes a binary digit. The domains are organised into loops and "moved" in similar fashion to a processor shift register to be read off as data. They are called bubbles because they look like bubbles from above.

The big advantage of bubble memories, and the reason why the industry has not abandoned all hope for them, is that they are non-volatile – in other words, they can retain their information after their power has been switched off.

Bubble memories also have no moving parts and can therefore stand up to tough military conditions and hold data reliably. Their limited success has been in the military market.

Commercially they have been a disaster, because they are much slower than magnetic devices and much more expensive on the basis of cost per bit of information stored.

Of all the esoteric memory devices to have been dreamed up in the last decade, bubbles are still probably the best bet to succeed.

Back in 1981 Intel reaffirmed its intention of building a viable bubble memory business, saying then there had been a "dramatic" upturn in demand for its one Mbit products. And its agreement with Motorola has confirmed its 1981 reaffirmation.

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Keeping track of IBM

■ From page 16

significant role to play in the future of computing.

Magnetic disc technology is already well established, but there is considerable exploitation value left in it, and both IBM and its plug-compatible manufacturers will continue to push it hard during this decade. IBM will still be mainly magnetic disc oriented by 1990, said Martin.

Some of the technological developments Martin expects to see in this period will boost storage capacities above current capabilities. As seen in the table below, current area densities are about 12.3 Mbits per square inch. To achieve this requires the use of thin film heads flying at 10 microns above the platters.

For comparison, 10 microns is 245 nanometres. The wavelength of red light is 600 nanometres, while purple is 400 nanometres. The flying height is already too small to be seen optically.

One of the first enhancements to appear will be a reduction in this flying height to 5 microns, which will lead to increasing density through smaller magnetic storage fields being created on the disc.

This will also be increased by changing from ferrous oxide media on the platters to thin film metal, a technology being pursued by IBM and CDC, which is working in association with Memorex. According to Martin, this offers much greater potential density than ferrous oxide.

Martin believes the next major breakthrough in magnetic will come with vertical recording – a technology he knows IBM is working on. "They must be," he said. "We are, and most of the other companies are as well."

It is a technique that has been proved to work in the laboratory in simple form, and it will be significant if it can be transferred to the real world effectively. "We see things moving this way," Martin said, "but you can't overlook Murphy's Law. We thought good things about charge-coupled devices, but we were proved wrong."

Year	Technology/product	Areal Density Mbits/sq.in.
		12.3
1980	IBM 3380	25.0
1984	Double density 3380	250.0
1986	Optical disc	50.0
1986	Metal film mag. disc	125.0
1990	Vertical recording mag. disc	625.0
1990	Optical disc	

Comparative recording densities of data storage devices.

What users look for in a new tape subsystem

Tape storage has a long life still in installations, says Suman Gambhir

FOR many years now it has been predicted that disc storage devices would totally replace magnetic tape as a medium for data storage. While there has been a tendency for users to go to online applications, there is today, and still will be in the foreseeable future, a fairly extensive use of tapes in data processing, because magnetic tape remains the most cost-effective medium for large data files.

Also, most organisations started data processing in batch mode and still have large tape libraries. Even with large capacity fixed disc drives, magnetic tape offers the least expensive medium for back-up storage, and tapes provide the capacity to store large volumes of data in portable compact form.

IBM has a number of tape drive models in the field and for virtually every model an equivalent is available from several plug-compatible vendors.

Unlike the disc drive market the PCM tape drive market has not experienced a great deal of volatility. This is primarily because IBM has not offered any new product or made any significant changes to its line of 3420 tape drives introduced in the early 1970s. In July 1980, IBM put its family of 3420 tape drives in limited new production. This announcement was read between the lines by most users to mean that IBM was shortly to announce a new tape drive with technological advances both in recording density and in speed. Yet, to date, no such announcement has been made.

> ❛ All indications seem to point to a new IBM tape subsystem in the first half of 1983, with PCM announcements to follow soon ❜

While everyone awaits IBM's new tape drive announcements and the PCMs' response to them, it may be useful to see what users are typically looking for in a new tape subsystem.

A survey conducted in early 198[illegible] among large system users in US and Europe came up with some interesting user requirements.

Three Mbyte/six Mbyte transfer rate. Since systems available now have three Mbyte channels, the users are looking for maximising tape unit usage to channel speeds.

Cartridge loading: Reduction of operator handling and further media protection featured high on the list of user requirements.

Reduced cost of ownership. Seeing the dramatic decrease in price per Mbyte of disc storage, the users are expecting similar reductions in tape storage.

Automatic offloading. A concept that has long been talked about but not yet developed to an acceptable level. An automatic tape library.

Reduced floor space. With the physical size of the CPUs becoming fairly small, users feel it would be necessary to have a compact tape subsystem.

The survey also indicated that, contrary to popular belief, almost 50% of work was still being done in batch processing mode with a desire to bring this down to 20% to 25% in the next five years.

It is thus obvious that the two prime uses of tape, at least over the next five years, will be batch processing and disc storage back-up. This makes it mandatory that the next announcement of tapes from IBM will be a fast start/stop device with data streaming capability. It was rumoured that IBM's new tape subsystem was only a data streaming device.

Recognising the market needs for a start/stop function, it is likely that IBM is now reworking its new tape to provide a dual capability. At the same time, PCMs are also working on a similar device.

The technological limitation of the magnetic tape medium prevents recording at densities in excess of 6250 bpi. Higher recording densities would lead to unacceptable levels of read/write failures. The logical step would therefore be to develop a new type of recording medium. An intelligent guess would be a chrome dioxide medium. Existing technology could provide a half-inch chrome dioxide tape recording on 18 track width with densities up to 25,000 bpi and provide up to six track in-flight correction. The densities could later to up to 50,000 bpi. Storage Technology has been working on such a device for the past two years.

All indications therefore seem to point to an IBM announcement of a new tape subsystem in the first half of 1983 with PCM announcements to follow soon after. Given the normal IBM announcement to delivery time, the new tape subsystems should be delivered in early 1984.

Since the PCMs have already been working towards the long delayed IBM announcement, the first new plug-compatible tape subsystem should also be delivered within four to six months of IBM's first deliveries.

Although the use of the tape has not grown as fast as the disc the reality remains that customers continue to use it for sequential batch applications, logging and disc dump/restore. With the availability of three Mbytes per second data streaming channels and 3380-type discs, a need exists today for improved tape subsystem performance.

Today's 3420 type of tape drives transmit data at a maximum of 1.25Mbytes per second. When attached to three Mbytes per second channels, data transfer rates are device limited, resulting in inefficient use of the expensive central processor channels.

The conventional tape channel selector protocol requires the channel, tape controller and the tape drive to remain connected for the duration of the input/output service time. Thus attaching more than one controller to the channel does not improve the channel throughput.

This dictates a need for a device or feature in existing systems to act as a data record buffer. With a buffer in the tape controller, data interleaving can be achieved with the tape or disc subsystem.

The selector channel protocol could be replaced with block multiplexor mode, and existing channel commands could be used to disconnect and reconnect the control unit and the channel.

The concept is very simple. The channel, even the three Mbyte data streaming channels, sends a read command to the tape controller which, on receiving the command, disconnects the channel. This channel can then be used by either another tape controller or other I/O devices. The tape controller acts on the command and starts the transfer operation from the tape units into the buffer, resident in the controller, at tape transfer speeds.

At a pre-determined time, the channel reconnects to the controller and data in the buffer is transferred over the channel at channel speed. At the same time, the channel gives the next command to the controller. The same operation, in reverse, could be used for a write operation.

Depending on the channel and tape drive transfer rate differential, buffered tape controllers could significantly improve channel data throughput. With a single two-port tape buffering the tape drive service time can be totally masked from the channel. Also, interblock gap traverse time would not lock out the channel from other control units. Data could thus be transferred at full channel speeds regardless of tape drive speeds.

Figure 1 shows comparative performance of a 200 inch per second tape subsystem with unbuffered controllers (like the IBM 3420-8) and a 125 inch per second tape subsystem (like the IBM 3420-6) but with one or more buffered controllers.

It can clearly be seen that with a single channel even a two-buffered controller configuration of a 125 ips subsystem yields a greater transfer rate than a non-buffered configuration of a 200 ips subsystem. The performance improvement gets far more dramatic if more buffered controllers are attached to the same channel.

Now let's take a look at the average response time of a buffered versus unbuffered tape subsystem (fig. 2). Here again by just hooking two buffered controllers of a 125 ips tape subsystem on a channel there is a 10% improvement in average I/O response time compared to the unbuffered 200 ips tape subsystem on the same channel.

Suman Gambhir is European product marketing manager at Storage Technology.

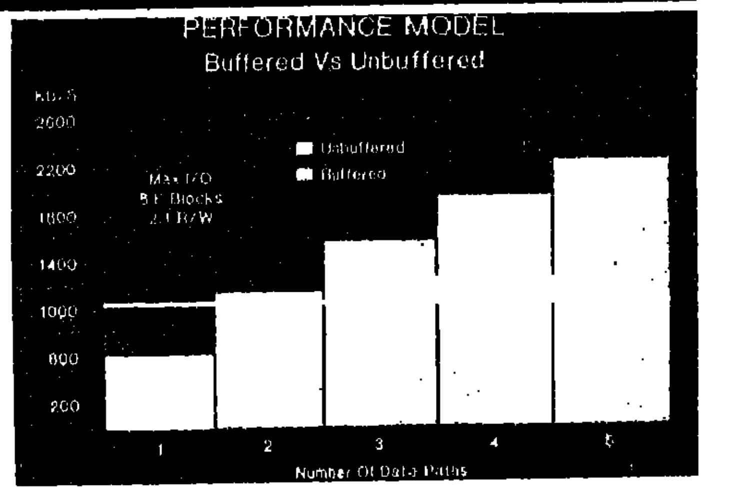

Figure 1.

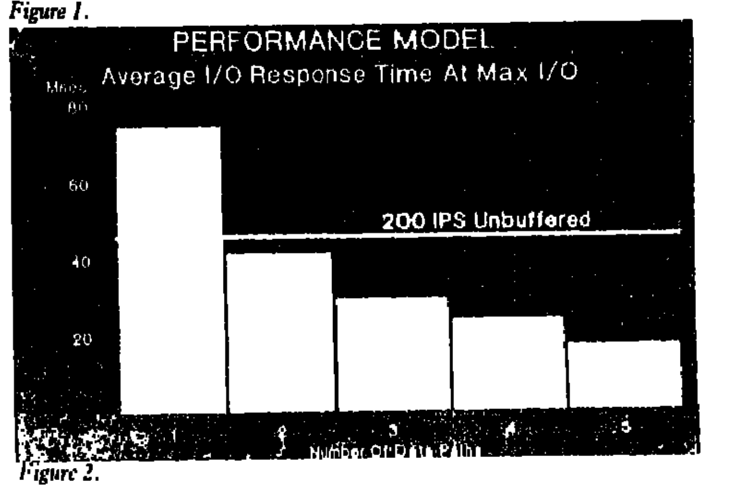

Figure 2.

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DATA STORAGE

Disc storage prices dropped 15% in the first half of 1982

Despite the UK recession, demand for storage units has recently grown rapidly says John Aczel

DEMAND for storage units in the computer industry has remained at a high level and has been growing rapidly in recent months. This expansion in sales has continued unabated, despite the recession in the UK economy and the difficulties affecting many industries.

There were many reasons for the expansion, but the main one has been the increase in new computer installations over the past couple of years. In particular, demand for mini- and microcomputers has been much higher than originally anticipated and this has led to a major rise in sales for various types of storage facilities.

Another factor of great importance has been the continued fall in price for disc storage units as well as for magnetic tape storage units. For instance, according to the latest import statistics, the average price of disc storage facilities fell to less than £950 at manufacturers' prices in the first half of 1982, and this represented a drop of about 15% compared to 1981. Sharp falls in costs for magnetic tape storage units have also been recorded during this period, and this, evidently, has opened up the market for these products.

Unfortunately, up-to-date statistics on the market for storage units are not available from official sources, though a number of market research organisations have carried out surveys. Some of the reports are useful for providing background information, particularly those provided by the International Data Corporation and Frost and Sullivan, but, in the case of many of these studies, they are not as up-to-date as one would wish.

Estimates for the size of the market can be derived from the official statistics, though a fair amount of inspired guessing has to be made, particularly as there is a considerable break in the trade statistics, resulting from the Civil Service strike during 1981. Thus, the import and export figures for the full year have not yet been published, and even in the case of the production figures for storage units, they have been affected by substantial revisions and contain a large margin of error.

According to our own estimates, however, the market for all types of storage units in 1981 was in the region of £150 million at manufacturers' prices. This figure has to be at least doubled in order to give some idea of the size of the market at retail level. The figures have been derived by adjusting the estimated production figures by the appropriate imports and export statistics, but considerable caution should be used in interpreting these figures.

Production of storage units in the UK has been growing relatively slowly and in 1981 amounted to about £70 million. This was about the same as in the previous year, though it is believed that for 1982 output could rise to around £80 million.

A significant proportion of production is exported, and in 1981 it is estimated that sales overseas amounted to around £50 to £55 million. Most of these exports have gone to major European countries as well as to North America.

Imports have been growing rapidly and in 1981 they are believed to have reached between £130 and £140 million. They accounted for over 85% of the British market, of which a marked proportion was accounted for by American companies or their affiliates in Europe and elsewhere.

Imports of computer storage units are playing an increasing part in the British market, and, in the first half of 1982, total deliveries from abroad reached over £95 million. The bulk of these imports, at least in terms of value, are represented by disc storage units, and their value amounted to £75 million. Most of the deliveries have come from the US, which accounted for nearly 60% by value. Increasing imports by American subsidiaries in Spain, Portugal and other parts of Europe have also been reported. In addition deliveries from West Germany have been increasing, and their value went up to a record figure of £1.2 million for disc storage units.

In terms of numbers, the American dominance is not as pronounced as in terms of value, because increasing numbers of disc storage facilities have come in from the Far East, normally at a lower price. For instance, Japan has now been stepping up its sales of disc storage units to the UK, and accounted for 10% of the total volume imported.

Imports of magnetic tape storage facilities have also been increasing, though they represented a relatively small share of the market when judged by value. In the first half of 1982, they amounted to £16 million, of which 62% cent came from the US. Other major suppliers of magnetic tape included Spain, with £2.1 million and West Germany with £1.1 million.

The trade figures also give a breakdown by numbers, and include imported cassette recorders used for storage facilities. For instance, during the first half of 1982, 56,000 magnetic tape units came into this country, of which 45,000 were accounted for by Taiwan. These machines were valued at less than £20 and were used with microcomputers of various kinds.

Exports during 1982 have been expanding, though the increase has been much more limited than for imports. It is estimated that during the first six months of 1982 total exports amounted to around £28 million, of which £24 million were accounted for by disc storage units; £2 million were sold abroad for magnetic tape storage facilities, while other storage units amounted to around £1.5 million.

Britain sells disc storage units to a wide range of countries, though the top markets for storage facilities included West Germany, with sales of £6.9 million, Italy with £4.1 million and France with £4.4 million. Increasing exports have also been reported to some of the Eastern European countries as well as to the Middle East.

The price of exports has been considerably higher than those for imports and, during the first half of 1982, the average price of a disc storage unit sold abroad was around £2,000. In recent months, however, the price of these exports has declined and showed a drop of over 10% compared to the end of 1981.

Clearly, Britain has a considerable gap in her trade in storage units and this has been increasing recently. In the first half of 1982, imports exceeded exports by about £70 million, which compared with a deficit of £85 million for the whole of 1981. Obviously, this imbalance will be sharply up in 1982 and there are no signs of this trend being reversed, at least for the time being.

	June 1982 £000	Jan-June 1982 £000
Belgium-Luxembourg	164	839
Canada	4	448
Denmark	525	1,246
France	190	1,858
Germany (West)	3,187	11,681
Ireland	224	807
Italy	295	1,563
Japan	595	2,266
Netherlands	765	4,927
Portugal	959	3,446
South Africa	96	251
Sweden	11	169
Switzerland	7	366
USA	10,761	44,641

Table 1: British imports of disc storage units by main suppliers (by value).

	June £000	Jan-June £000
Belgium-Luxembourg	32	464
Demark	8	20
France	–	147
Germany (West)	405	1,094
Italy	–	21
Netherlands	29	495
Norway	–	33
South Africa	10	11
Spain	540	2,165
Taiwan	247	866
USA	2,514	10,652

Table 2: British imports of magnetic tape storage units by main suppliers (by value).

	June No.	Jan-June No
Belgium-Luxembourg	216	498
Canada	8	372
Denmark	43	109
France	151	2,427
Germany (West)	890	6,403
Ireland	686	803
Italy	275	2,166
Japan	1,733	10,502
Netherlands	1,256	11,882
Portugal	322	1,230
South Africa	58	143
Sweden	11	382
Switzerland	8	77
USA	10,768	41,465

Table 3: British imports of disc storage units by main suppliers (by number).

	June No.	Jan-June No.
Belgium-Luxembourg	88	109
Denmark	1	[illegible]
France	–	[illegible]
Germany (West)	91	4,136
Italy	–	3
Netherlands	89	232
Norway	–	135
South Africa	3	4
Spain	80	353
Taiwan	12,800	44,850
USA	693	4,377

Table 4: British imports of magnetic tape storage units by main suppliers (by number).

	June £000	Jan-June £000
Australia	34	74
Belgium-Luxembourg	86	450
Canada	–	126
France	1,063	4,429
Germany (West)	1,484	6,922
Ireland	133	1,055
Italy	370	4,137
Japan	205	409
Netherlands	140	594
Sweden	134	613
Switzerland	154	715
USA	305	2,462

Table 5: British imports of disc storage units by main markets (by value).

	June £000	Jan-June £000
Canada	–	22
France	124	398
Germany (West)	12	172
Italy	21	62
Japan	2	9
Netherlands	100	253
South Africa	29	69
Spain	28	339
Sweden	–	104
Switzerland	21	64
Taiwan	33	33
USA	29	160

Table 6: British exports of magnetic tape storage units by main markets (by value).

	June No.	Jan-June No.
Australia	25	38
Belgium-Luxembourg	54	310
Canada	–	60
France	598	2,262
Germany (West)	611	3,259
Ireland	65	1,082
Italy	152	1,267
Japan	73	189
Netherlands	79	237
Sweden	50	251
Switzerland	50	300
USA	165	1,013

Table 7: British exports of disc storage units by main markets (by number).

	June No.	Jan-June No.
Canada	–	15
France	15	101
Germany (West)	3	185
Italy	7	28
Japan	1	4
Netherlands	12	110
South Africa	2	11
Spain	17	163
Sweden	–	19
Switzerland	16	39
Taiwan	6	4
USA	7	268

Table 8: British exports of magnetic tape storage units by main markets (by number).

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SOFTWARE MONTH

WP opens computing to a new set of users

Most people buying a word processor are looking for a solution that places no computing demands on the user.

WORD processing is a misleading phrase. Perhaps the only difference between word processing and data processing is that DP uses languages like Cobol whereas WP uses English.

Most software folk see WP as a fringe activity, because it deals with low-level clerical tasks. In effect, that's what makes it powerful. From word processing, data processing is not such a big step. Those starting with standard letters soon realise how much more they could do if the letters could be linked to, say an accounting system.

In this issue of Software Month, edited by Claire Gooding, independent WP consultants Kevin Townsend and Kate Taphouse argue that word processing is central, not peripheral, in bringing computerisation to a whole new class of users.

IT IS sometimes difficult to remember that word processing as we know it today has been with us for only a little over half a decade. Seven years ago, British Olivetti was still actively selling a non-screen text-editor (the S-24) that used a cartridge tape backing store. Without the direct access of disc store, and the ability to see alterations taking place on a CRT screen, modern word processing would never have developed.

Those early machines were simply text editors. Words could be typed at the keyboard and stored on tape. They could be played back and printed at will. With some difficulty, the words could be edited and altered. At this stage, the term "word processing" was quite fitting.

The advent of floppy discs meant that editing became simple and effective. CRTs made the entire process easier to follow, and more efficient and enjoyable for the operator. Suddenly, in the late 1970s, the market was thrown open. Silicon chip technology meant increasing capabilities in smaller machines; growing computer literacy meant that the businessman was ready to embrace new technology; and ever-improving programming techniques meant more powerful software.

The market was, and still is, large enough to support a large number of different companies competing head-on. Only the best machines and the most powerful software will survive. This means a continuing effort to improve and expand the capabilities of word processing.

Finally, during the last two or three years, one further development has spurred the expansion of ever more versatile word processors – an attack from the new generation of small general purpose micros, and particularly those capable of running the enormously popular CP/M operating system.

WordStar, Spellbinder and PeachText (ex Magic Wand) are examples of WP software packages that run under CP/M and are comparable in power to all but the most sophisticated of the dedicated word processors.

Their advantage is, of course, that they can be integrated with non-WP software – with financial modellers like SuperCalc and MicroModeller, and with data management systems like DMS or dBaseII. Even the new program generators, such as Lifeboat's Programmer's Apprentice, can be used to produce source code for programs that can integrate with WordStar. The result has opened up the word processing market even further, To compete on level terms, more and more "dedicated" word processors can now offer CP/M, for example IBM's Displaywriter, the DecMate II, Wordplex, CompuCorp and AES are but a few.

In short, it has now become difficult to exactly define a word processor, and to define the difference between word processing and data processing. But, taking an arbitrary viewpoint, we could say that a dedicated word processor is simply any microcomputer that is primarily sold as a word processor, while a general-purpose microcomputer running CP/M could better be described as a micro with word processing capabilities.

Most dedicated systems have a library of inter-related functions (mailing, mathematics, list processing, spelling checker,etc) that are all sold under a single banner. Most general purpose micros achieve the same end, but by using different packages from different software houses.

Performance is no longer the deciding factor between dedicated word processors (AES, Wordplex, Bitsy, etc) and general-purpose micros. Price, however, may well be. The average dedicated system costs in the region of £5,000-£8,000; the average general purpose system can be bought for between £3,000 and £5,000. But before potential buyers choose the cheaper system, they would do well to query this difference.

The first thing to remember is the vast difference between the WP and DP markets. Most people who buy a microcomputer do so because they have, or intend to acquire, a knowledge of computing. Most people buying a word processor are looking for a ready-made business solution that can be used by the office typist and will place no computing demands on either the typist or the boss!

In other words, the word processor operator who has a problem will automatically telephone the supplier for the solution – a general-purpose microcomputer user will simply sit down and solve the problem.

Suppliers of any equipment know the cost of customer support. With word processors it is not unusual for the field services or customer support representative to be called out to a site because the operator has forgotten to plug the hardware into the power supply.

The cost of this support has to be included in the overall cost of the hardware of the system if the system is sold as a dedicated word processor. Suppliers of general-purpose micros (you know the ones – "buy our micro and get a word processor free!") can avoid this overhead and consequently sell the equipment at a much lower price.

Ergonomics is another major difference between the two systems, and this also plays a considerable part in the cost difference. Word processors are used by typists who are expected to sit in front of them all day. Efficiency and comfort demand that they be made as easily used as possible. Once again the selling price of a dedicated word processor has to absorb an increased cost of ergonomic design and research that is avoided by the general-purpose machines.

The difference here can be seen most clearly in the difference between the keyboards of the two systems. Compare the operations of a programmer and a typist. The text of a program is generally a series of short lines, each terminated by a carriage return. That is, the ability to locate and delete individual lines, together with the ability to insert new lines, is adequate for the greater part of data processing input. Most general-purpose micros have keyboards designed for this and no more.

Word processing text, however, is usually composed of large passages of text in paragraphs run together with only one terminating carriage return. And it is, almost by definition, the kind of text that demands frequent and extensive modification.

The ability to locate individual characters rather than lines becomes of primary importance. But this produces a WP requirement that is of little of no importance to the DP user – a requirement for special keys that allow the cursor to float over the text without affecting it. These cursor control keys still do not exist on many of the cheaper micros.

It is indicative of the blurring of distinction between DP and WP, that the British manufacturer of microcomputers, LSI Computers has developed a special keyboard for its M3 micro with nearly 50 function keys that can be tailored to either WordStar or Spell Binder.

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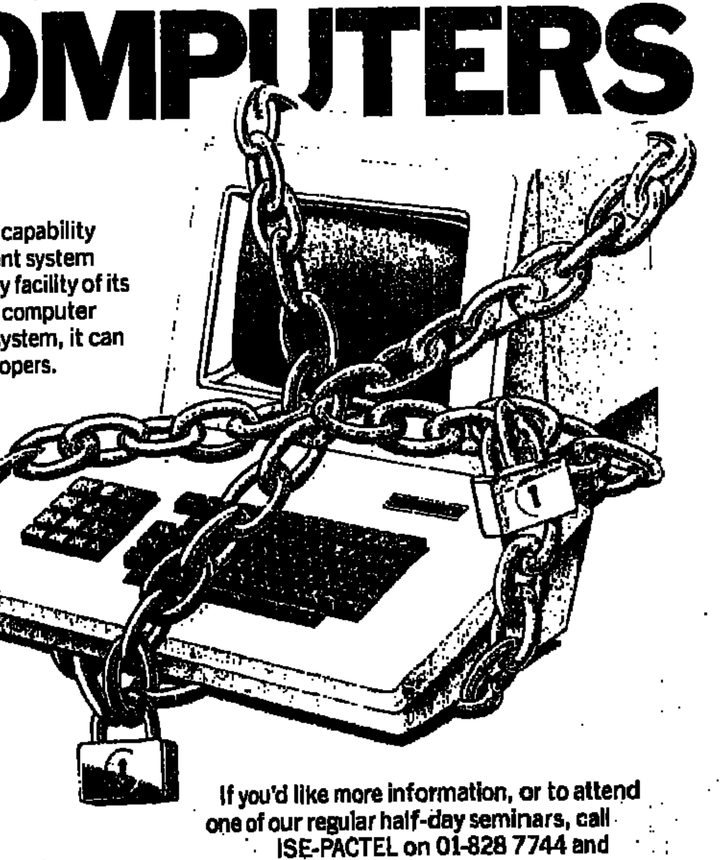

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Beware of the wolves when you seek advice

INDEPENDENT, expert and unbiased advice is always of benefit when choosing a word processing system. The problem, however, is how to tell whether that advice *really is independent and/or unbiased.*

In all professions there are dubious consultants – just as all professions have genuine consultants. Word processing suffers more than most. Four years ago, a decent word processor cost about £10,000. Today, the same word processor – DEC's WS78, for example – can be bought for £5,000. Four years ago it made sense to spend £500 on independent consultancy to avoid mis-spending £10,000. Today, few company accountants are likely to countenance a 10% consultancy fee. So it is becoming harder and harder for the genuine consultant to make an honest living.

Tony Teague, managing director of Jayswood Context, has asked if there exists any such body as an association of word processing consultants to monitor the integrity of "independent" consultants. It seems that there isn't one.

Jayswood Context is a major supplier of the Compucorp Omega word processor. It is without a *doubt one of* the more sophisticated systems currently available, with a spelling checker, powerful mathematics, versatile records management, and even "command files" capabilities. Tony Teague received a call from an "independent" consultant who asked what commission he would receive if he advised his client to buy Omega.

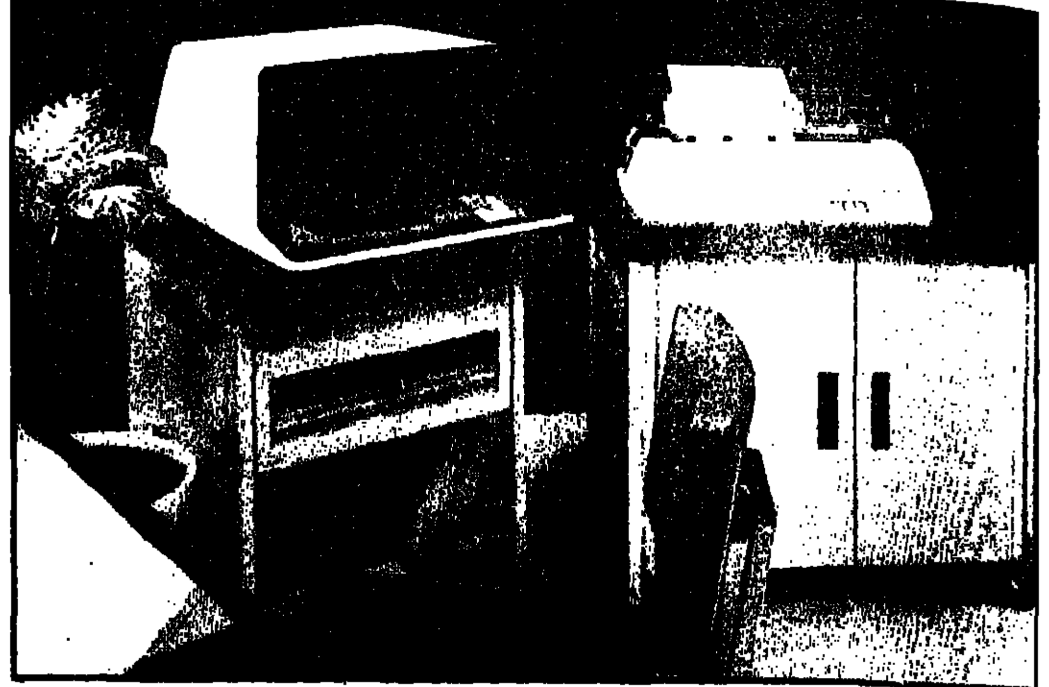
Teague, knowing that the Omega is able to sell itself on its own merits, refused to discuss the matter with the consultant. This consultant cannot call himself "independent" if he is open to backhanders from the suppliers.

On the other hand, if a potential buyer can find a genuine consultant, the benefits could be enormous, and too large to ignore. To ensure the consultant's total independence, the prospective user could insist on a written declaration and guarantee that no undisclosed payments between supplier and consultant will take place. The client must then make sure that all potential suppliers are aware of this declaration.

The consultant can still make his money, not as a backhander to himself but as an open discount, profesionally negotiated for his client. All payments would be between the client and the consultant, and a fee of 50% of the negotiated discount would bring benefits to both parties.

Learned journals are littered with statisitcs demonstrating that word processing can improve typing efficiency by anything between nil and 700%.

It may sound an anomaly, but all these figures are correct. If there is any "law" that can be applied to word processing, it is that cost efficiency will increase in direct proportion to the degree of repetition involved. Thus, a government report could accurately state in 1978: "On general correspondence (letters and minutes) prepared from shorthand notes or written drafts CWP (computerised word processing) has not clearly demonstrated any advantage over electric typewriters . . ."



Four years ago DEC's WS78 word processor cost about £10,000 – now it's only £5,000 per unit.

Two years later, a more detailed report from the same source concluded: "The use of word processors (of the type used in the trials) in the UK government typing pools will be justified, in cost terms, if increases in typing productivity of between 43% and 72% are achieved . . ." (Presumable, the authors do not actually mean that the achievement of a 73% increase returns the installation to unprofitability!)

Frankly these figures are minimal and hardly seem to justify the trouble of installing the system. A well-organised word processing installation, concentrating on repetitive typing and ignoring one-off letters and memos, could expect to average an increase in typing throughput of between 250% and 300%.

This makes the entire process worthwhile.

The second report mentioned above also revealed that over 75% of the operators who used the word processors were "satisfied" with them and would like to continue to use *them. Less than* 5% were "dissatisfied", and only 7% did not wish to continue with them.

Clearly, job-satisfaction is a potential benefit that could accrue from the installation of WP, and in fact the favourable response is likely to be even more marked today, following the many ergonomic improvements implemented during the last few years.

One of these is the introduction of the A4 "page" on CPT's 8000 word processor. The screen display looks like an ordinary sheet of white A4 paper and indeed the system *mimics the action of* an ordinary typewriter: each line of "typing", once entered, scrolls upwards when the line-space key is struck. Editing, deleting, correcting and adding text is accomplished by scrolling back to the relevant line – there is no cursor to manipulate.

CPT has obviously come to definite *conclusions* about *making* its word processor as user-friendly as possible. Sandy Okten of CPT said of the 8000: "Using the full A4 page display gives the typist a much more realistic view of her work. The colour tones are typical typing tones, ones which the operator will already be familiar with from her typing days. Using the 'electronic paper' screen makes the transition from typewriter to word processor much easier."

Because many of the problems encountered by typists moving over to work processors involve a basic inability to come to terms with not being able to visualise an end product, CPT has approached the problem in a realistic and logical manner.

Japanese get the word on Western WP sales

THERE ARE a number of Japanese word processors, although until recently the Japanese have been unable to produce good software for the Western market – Sord's PIPS is perhaps the exception.

Suggested reasons for this failure are legion, ranging from the practical – "The Japanese have no imagination" – to the esoteric – "Western *business is a product* of the right side of the brain, Eastern is a product of the left".

But there are now a number of word processors which illustrate the way the Japanese are approaching the market. First, it is worth noting that nearly all Japanese micros are CP/M compatible, and can therefore use WordStar, PeachText, and so on.

More specifically, Canon has just released a new system called WordPlay. This combines the existing CX1 micro and Canon's electronic typewriter to produce an inexpensive word processor. To solve the software problem, Cannon wrote the system in-house, but from within Canon UK.

A spokesman said: "We took this approach because word processing and language are so inextricably bound together, it is difficult to see how a member of a different culture could write adequate software."

Even more indicative of the future is the arrival of a completely Japanese word processor. The Toshiba EW100 is a dedicated word processor with software written for the manufacturer by a Japanese software house. The sole importer, Office International, is already finding *considerable* success with the system, which is claimed to be based on cost competitiveness, engineering excellence, and software suitability.

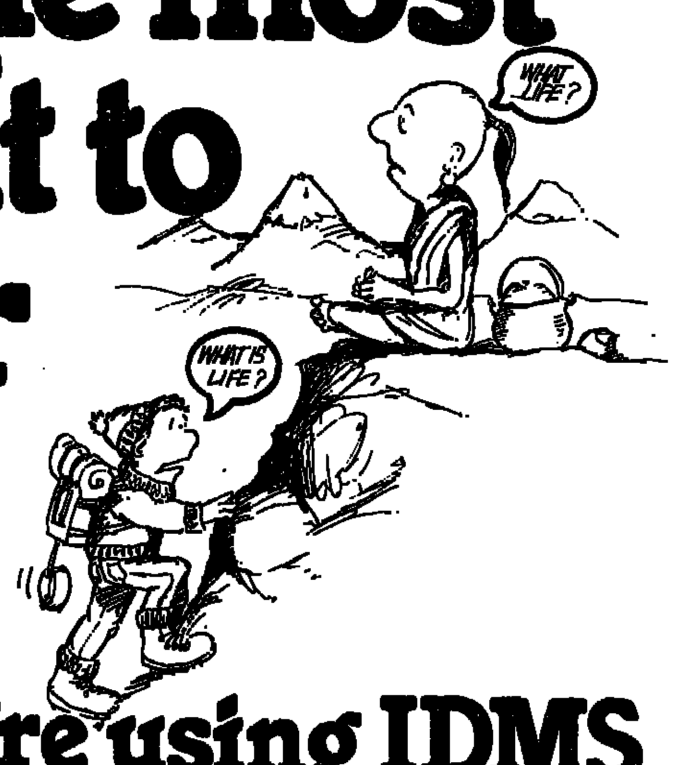
John Ballard, responsible for establishing a UK dealer network, said: "We are already finding that dealers with existing and established Western word processors are *moving to the* EW100 because of its current capabilities and Toshiba's clear commitment to future enhancements."

Gazing into the crystal ball is one of the computer industry's favourite pastimes, and also one of its least successful. Technology changes too fast for accurate predictions to be possible. We may feel certain, however, that the ultimate aim for word processing will be interactive editing controlled by voice. When or how this will be achieved remains to be seen, although the Japanese have decided that they will, with or without (but hopefully with) the co-operation of the rest of the world, achieve this with Fifth Generation computers during the next 10 years.

More immediate projections, based upon current capabilities, are easier to make. One of these has to be an attack on the current role of the applications programmer, initially in user companies, but ultimately in small software houses as well. It could be said that this trend started some five years ago when DEC released a very powerful [illegible]

■ Turn to page 23

The simplest questions are often the most difficult to answer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No word processing problem is insoluble

THERE are numerous problems associated with the installation and use of word processors. None of them, however, are inevitable or insurmountable. The first problem to be avoided is the alienation of staff, which is quite likely to happen if the selection and implementation is undertaken under a cloak of secrecy.

Many people believe that since the typist or secretary is going to spend a great deal of time in front of one of these machines, she should become as involved in the decision-making process as the senior buyer. *Many suppliers are* convinced that it is almost as important to sell to the secretary as it is to sell to the boss.

Once a system has been installed, potential problems range from the annoying to the serious – from the danger of creating the Queen Bee syndrome and producing lazy authors, to the more worrying question of the health and welfare of employees. The Queen Bee syndrome is an affliction that strikes many WP supervisors, who, unsure of their own position with the new technology, spend much of their time suppressing the ideas, and eventually the spirit, of their charges.

Lazy authors are the result of insufficient training. Most installations are aware of the clear need to train the operators, but few managers realise that they must also train the rest of their staff in an appreciation of the uses and capabilities of word processors.

All too often, middle-management report writers, who know only that "word processing makes typing much easier", allow the document to go through innumerable re-drafts because they have become too lazy to get it right first time. The calculator has made some mathematicians lazy – the word processor can do the same to writers.

The health aspects of long duration word processing are too complex to discuss in this article. It has yet to be proven, however, that *any harmful* radiation is emitted from the standard VDU. Nevertheless, it does seem certain that some people are affected by the use of modern word processors. One secretary wrote to us complaining of eyestrain, and adding that other members of staff had become noticeably irritable since the installation of a VDU. It has been suggested that an increased level of positive ions in the atmosphere could be the cause of irritability. Since VDUs are notorious producers of positive ions, particularly in air-conditioned, nylon carpeted rooms, perhaps the installation of an ioniser could improve the atmosphere and efficiency of word processing installations throughout the country.

The standard image of a word processor is that of a standalone microcomputer enjoying a one-to-one relationship with its user. In specialist circumstances, word processing can also be used on minicomputers; but hardly ever can it be justified on a mainframe.

Apart *from using a sledge*-hammer in the proverbial manner, this is really a legacy of the very nature of word processing – it is perhaps the most consistently interactive of all commercial software packages, and the response to the user has to be instant at all times.

Most mainframes are usually over-subscribed from the beginning. Economics dictates that the average company will not buy a mainframe until it needs two! Even minicomputers do not make successful word processors unless they are used as dedicated systems. Word 11 on a PDP 11/34 with 256K RAM is an excellent and highly proficient word processor – for seven users.

But if the managing director becomes greedy and decides that money could be saved by hanging 10 stations on the same processor, then the result is 10 mediocre word processors and 10 frustrated typists. The reason is this. A good touch-typist will rarely look at the keyboard or the screen – she looks at her source text. Her speed depends on building up to a peak in terms of speed and rhythm. If this rhythm is constantly interrupted by a keyboard "buffer full" bell because the processor is too busy with the other nine operators, the result is inefficiency and frustration.

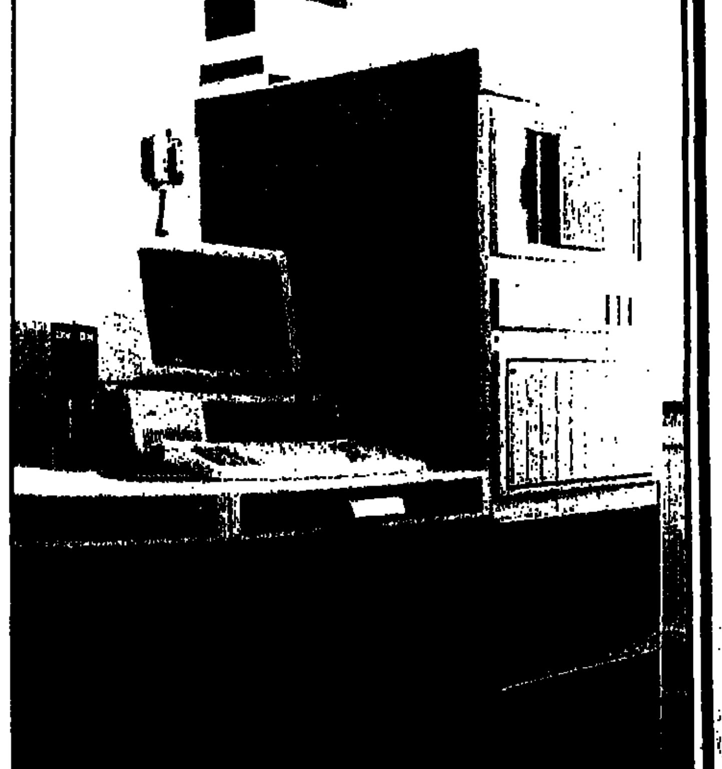
It is even worse if there is no keyboard warning bell. if the typist does not watch the screen, she will be unaware that some of her characters are not being recorded, and the result will be a document with random errors.

Word processing and mainframes interact best when the mainframes are reserved for records storage and data processing, but are front-ended by more user-friendly word processors with their own local processing capabilities.

An example of this has been available from ICL for several years, and deserves better recognition than it has so far received. ICL has a good word processor called Wordskil available on its 7700 range (which admittedly suffered in its early day from processor overloading problems). ICL also has the formidable Codasyl database, IDMS from Cullinane, available on its minis and mainframes. Between the two sit Wordskil Manager, a package that allows the word processor to pass information to and from IDMS.

It may be said that the automated office of the future depands upon the successful marriage of word processing and communictions, which is, after all, the very stuff of electronic mail. Most word processors are capable of communications, at least with others of their ilk; and certainly no word processor should be bought today if it cannot communicate.

■ *More Software Month on Page 28.*



IBM's Personal Computer online to an ICL ME29.

Japanese into WP market

■ From page 22

package as part of the WS78 word processor.

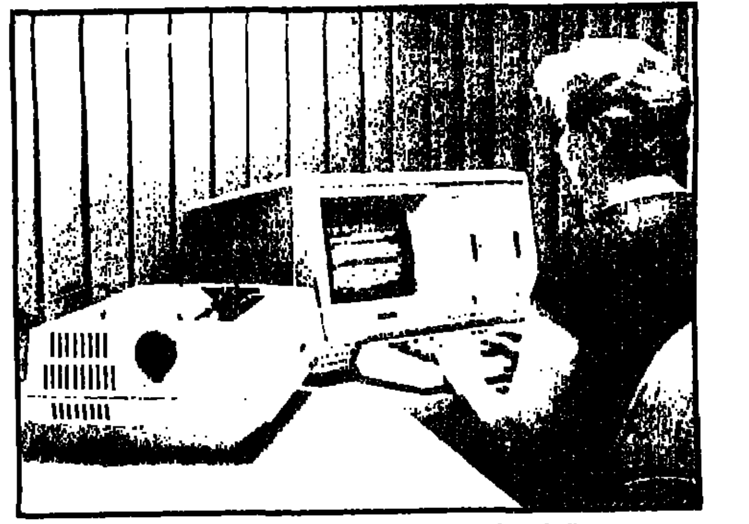
The next step, from a number of different manufacturers, was the development and integration of mathematics capabilities into both list processing and general text editing.

During the last year several manufacturers have released a new feature that amounts to the batch *operation of command files*. Compucorp, Dictaphone and even the lowly Apple Writer III have this feature. The only surprise is that it took so long to arrive. It is difficult to imagine the word processing systems programmers, busily developing micro software on the company's minicomputer, doing without command files.

If we look at this concept as applied to word processing on the Compucorp Omega system (called Autopilot), we can begin to see the full potential of the modern word processor. During the month, information can be entered (by word processor) into the company database (records management, or list processing) and automatically sorted and stored. At the the end of the month, a command file (Autopilot) can be invoked to run, one after the other, a number of separate command files.

The first could search through *the accounts database, selecting* outstanding debts and producing automatic chasing letters. The second could then produce a sales summary report for the accountant, and could invoke the mathematics (Omegamath) routine to produce the totals (including, for example, a percentage difference on last month's figures) for a selected range of goods.

Word processing is clearly no *longer simply "word processing"*. It is an ever-increasing library of general office routines that are written to be used by the office typist, and not necessarily a graduate in computer sciences. It is perhaps indicative that nearly all new software packages are written to standards learnt or pioneered by word processing.



Toshiba's word processor. Software, unusually, was written in Japan.

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(In case of 'embarrassment', that's how you spell it.)

Spelling Verification Program

Politicians have a habit of interfering in businesses of all kinds, and the computer industry is increasingly attracting their attentions. In the US, the Reagan administration is tightening its grip on the export of computers and other technological products to the Soviet Union on the grounds that they provide strategic equipment for the Soviet military effort.

But as Linda Rout and Bridgette Lawrence explain in these articles, in the case of computer exports to South Africa President Reagan is more selective in his definition of strategic military support.

It would be unfair to accuse computer manufacturers of supporting any particular régime — they want to sell their products to any buyer prepared to pay for them, regardless of political considerations.

●

IBM is a company which has been exemplary in keeping its doors open for trading to all countries, subject to US government restrictions.

But as a multinational corporation, IBM is also conscious of its wider role in international politics.

"IBM abides by the 1963 and 1977 US and UN arms embargoes concerning South Africa," the company told *Computer Weekly*. "Sales of IBM equipment to South Africa are in compliance with US government regulations.

It would be unfair to expect IBM or any other US computer manufacturer to turn its back on a country wanting to buy computers, if manufacturers in other industrialised countries are only too glad to step in the breach.

Meanwhile, computer manufacturers prefer not to get involved in politics and to limit their attentions to competitive issues. But computers continue to find their way into military applications in South Africa.

South African police baton charge a peaceful demonstration of women protesting against the pass laws, which apply only to blacks. ICL computers provide a logical support for enforcing the system.

How the trade in computers helps to crush human rights

IN NOVEMBER 1977 the United Nations Security Council passed a resolution imposing a mandatory arms embargo against South Africa. The wording of the resolution was drawn up by the three permanent Western members — the US, the UK and France — after they had rejected the original draft resolution presented to the council.

The changes made paved the way for a variety of legal interpretations which have been put on the resolution. Since then Western states have violated the spirit of the embargo consistently — to the delight of computer manufacturers.

Resolution 418, adopted unanimously by the Security Council, proclaims: "All states should cease forthwith the provision to South Africa of arms and related materials of all types, including the sale or transfer of weapons and ammunitions, military vehicles and equipment, para-military and police equipment, and spare parts and shall cease the provision of all types of equipment and supplies and grant and licensing arrangements for the manufacture and maintenance of the aforementioned."

Britain and the US signed a similarly worded resolution — number 191 — in 1964, but computer manufacturers flout both embargoes with the blessing of their respective governments.

IBM is South Africa's largest supplier of computers, selling through its subsidiaries there. In 1978 IBM's sales to South Africa increased by 250% against the previous year.

US computer manufacturers were only partially hamstrung by President Carter's export restrictions. The South African régime obligingly provided a mechanism which would allow manufacturers to disclaim knowledge of the destination of a machine. A front company called Infoplan was used to meet the hardware needs of the South African military.

Now the Reagan administration is giving stronger support to South Africa's militarisation programme, and has given the green light for computer manufacturers to export machines there.

Last year Sperry Univac was granted a licence by the Reagan administration to export a model 1100/82 mainframe to replace an ageing 1100/12 installed in 1978 at Atlas Aircraft, which manufactures the Mirage and Impala jet fighter planes.

Univac claims that the computer is to be used for manufacturing and inventory control and general accounting applications. US permission for the export was granted after the transaction had taken place.

"Why would you ask for a licence if you haven't got an order?" explained a spokesman for Univac in London. "It's always been done like this with computer exports, as in the case of IBM computer exports to the USSR. Negotiations have to be done beforehand."

> **‘ICL machines are used to run the inhuman pass system; they contain details of the employment and whereabouts of hundreds of thousands of black workers’**

The future for US companies exporting to South Africa appears to be rosy now that the Reagan administration is taking a softer line on export controls. This brings the Americans closer to the more lenient policies towards South Africa practised by successive UK governments.

An example of the UK's softer line was provided during the last Labour government. In 1978 ICL won the contract to supply the South African police computer against US competition.

The restrictions imposed by the Carter administration on US companies were a significant factor in ICL's success.

The UK government, unlike the Carter administration, has never put a specific prohibition on sales to the South African police.

From the outset the contract was surrounded by controversy. The ICL machines are used to run the inhuman pass system; they contain details of the employment and whereabouts of hundreds of thousands of black workers who face imprisonment if they are found without their pass-books in the white areas of South Africa — the bulk of the country's land.

Workers at ICL factories opposed the sale on ethical grounds and made representations to the management to this effect. The sale went ahead. At the time ICL declined to acknowledge the order, but reiterated that it will do business with any country with which trade is legal under UK law (CW, August 10, 1978).

The ill-fated transaction later came under the investigation of the US Department of Commerce when it was discovered that nine disc storage units made by US-owned Control Data were included as part of the UK-assembled systems. At the time this contravened President Carter's prohibition of the re-export of equipment for use by the South African police.

Subsequent investigations finally brought ICL and ICL-South Africa to court in the US earlier this year, where ICL neither had to admit nor deny the charge provided they paid a "civil penalty" of $15,000 in return for the US Commerce Department dropping all further proceedings.

No special licence is required from the Department of Trade for the export of general purpose computers to South Africa and the machine for the civil police falls into this category. Despite pressure from anti-apartheid groups, the UK government's response to the United Nations call for an embargo on sales to South Africa remains apathetic.

In an Amnesty International Report on repressive technology in South Africa, the managing director of ICL-South Africa is quoted as saying: "Our computers are quite extensively used by the Bantu Boards in administrative jobs. We also have a computer which stores information about the skills of blacks." The Bantu Administration Boards administer the complex system of permits and controls governing the lives of South Africa's black population under the auspices of the country's Plural Affairs Department.

Other computers reported to be at the disposal of the Bantu Boards include machines made by Burroughs, NCR and Mohawk Data Sciences (MDS).

Although CDC denied any responsibility for its involvement in the ICL police computer contract, a lot of its equipment is already installed in South Africa.

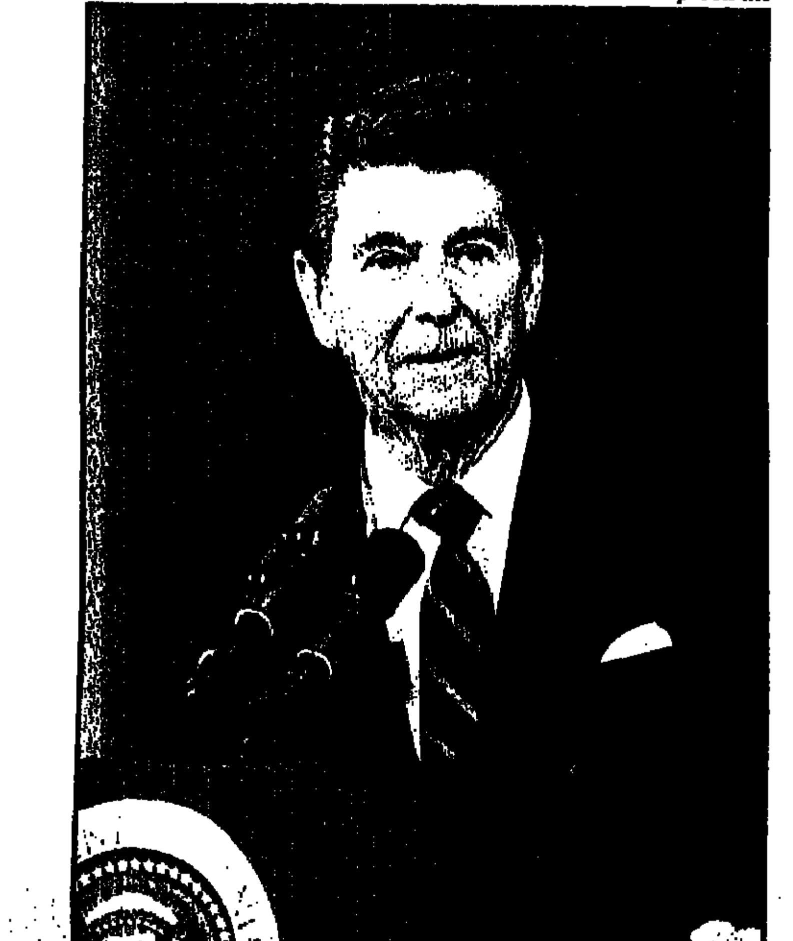
According to a paper on strategic technology, presented to a UN seminar by US trade official Thomas Conrad CDC has equipped South Africa's Council for Scientific and Industrial Research through a local subsidiary. The CSIR is involved in a number of military and counter-insurgency projects. The same subsidiary was selected in 1981 to work on a military communications project called Project Bowie.

The exact nature of this work has not been revealed, but CDC is believed to have received a contract worth over $200,000. Conrad claimed that the project involves the Uitkijk Radio Centre at Voortrekkerhoogte, South Africa's military headquarters. The Second Signal Regiment of the South African Defence Force, which comprises the Army, Navy and Air Force, is in control of the project.

CDC admits its participation in Project Bowie, but claims that no US technology is involved and that the contract is for the installation only of computer rooms and facilities.

Another example of a contract in

■ Turn to page 25



President Reagan has relaxed rules on trade with South Africa.

Trade important to apartheid system

■ Continued from page 24

the grey area between military and civilian equipment is the computer-controlled communications network ordered by the South African government in 1975. Called the Tropospheric Scatter System, the contract was worth $20 million to Marconi in the UK.

Anthony Sampson, in his book, *The Arms Bazaar*, said of this system: "It was not capable in itself of killing anyone but it was indispensible to computer controlled warfare and the electronic battlefield."

There are also reports of Westinghouse, ITT, Digital Equipment and Plessey goods being used for "repressive purposes" in South Africa

In a reply from Lord Carrington to Abdul Minty, of the anti-apartheid movement, in 1979, the Foreign Office confirmed that Plessey military electronic corporation was selling radar equipment to South Africa. This information was contained in a reply from the then Foreign Secretary, to an inquiry by anti-aparthied campaigner Minty. The system included computers made by US-based Digital Equipment. Plessey was training South African Air Force personnel on the US hardware.

It appears that DEC/Plessey radar equipment is used to protect Pretoria's strike forces in action.

Neither the US State Department nor DEC has supplied a detailed explanation of the affair. DEC's Irish subsidiary confirmed in a letter to Irish anti-apartheid campaigners in 1979 that a substantial part of the company's business consists of sales to third parties.

Westinghouse is one of the companies which has supplied hardware for the computerised rail tracking system, used to transport resources to conduct the war in Namibia, which is occupied by South Africa.

This case also illustrates the problem of identifying the use to which computer exports are put. While the UK government purports to prohibit sales of military equipment to South Africa, the definition of such equipment is so vague that the prohibition cannot be enforced.

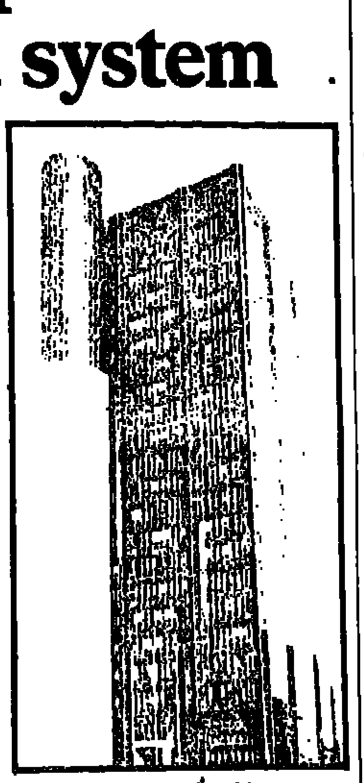
Prime Minister Margaret Thatcher said in a letter to Jacques Berthoud, chairman of the British section of Amnesty International, that drawing a line between military and civilian use of goods would be difficult. "Any workable legislation . . . would exert an excessive degree of control over our exports . . . when our export industry already faces serious difficulties . . . I must emphasise that it is the government's policy to keep . . . restrictions on exports to a minimum," said Thatcher.

President Reagan has made it clear that he supports a softening of the line taken by Jimmy Carter on the South African embargo. On March 1 this year the US Department of Commerce announced the modification of export controls to South Africa and Namibia, "to remove controls that were detrimental to US business, while having little, if any, impact on South African adherence to apartheid".

Thus permitted exports which are not formally in breach of the UN arms embargo may violate the spirit of the resolution.

An important loophole for companies which wish to profit by dubious trade with South Africa is the fact that the UN resolution does not prohibit the manufacture of arms inside South Africa by local subaidiaries of multi-national companies. Hence the proliferation of South African subsidiaries of US companies after the restrictions imposed by Carter in 1978.

As yet the US Commerce Department is undecided about what equipment has "significant" police and military application and what has not. Computer memories, microfilm which permits high-speed retrieval and review of files, chemicals, industrial goods and electronic chips — taken alone, none of these products are military items. But in the hands of South Africa's police and military they can be used to help the government track and destroy its opponents.



IBM runs its South African operation from its Johannesburg HQ.

In a letter to the US Department of Commerce soon after the relaxation of the export regulations were announced in March, Randall Robinson, executive director of TransAfrica, a lobby organisation for Africa and the Caribbean, said: "The sale of non-lethal goods to the South African military and police forces, as well as the sale of computers to various government departments subverts the expressed intent of dissociating the US from the system of apartheid."

Calling the move to weaken export regulations to South Africa "flawed and irresponsible", Robinson went on to say that the decision by the Reagan administration "will encourage rather than deter human rights violations".

The UK government's interpretation of the embargo is shrouded in secrecy. According to a Department of Trade spokesman, computer hardware falls under general export licensing procedures.

The Department of Trade said that in making decisions about individual sales they followed a certain guideline, but it is secret and "there is no way it can be found out".

Reagan's laissez-faire attitude towards export controls will make a similar approach by other countries more acceptable, and world opinion is likely to soften on the issue of trade with South Africa. The future looks bright for computer companies out to increase their South African sales.

Lord Carrington, speaking in Barbados in 1980, said: " . . . Our policy is to sell arms to our friends and those whom we wish to encourage to defend themselves."

The United Nations embargo, although voted for by the UK and the US, and made mandatory by the Security Council, appears to be nothing more than cosmetic legislation. A United Nations spokesman explained that it was difficult to enforce, because any attempt to force a signatory to comply with the terms of the resolution would be vetoed by another signatory.

The UK and the US among others can appear to support the embargo without taking effective action to back up their support.

It would be short-sighted to condemn computer companies for their sales to South African customers, while their respective governments do little or nothing to discourage trade with the régime.

While governments continue to practice hypocrisy on the issue of trade with South Africa computer exports will continue to flourish.

The military takes advantage of 'grey area' between arms and civilian kit

Loopholes allow the military to get the machines it wants

SOUTH AFRICA'S largest research agency, provides an example of the "grey area" of computer use in the country. As well as civilian scientific work the Council for Scientific and Industrial Research undertakes research and development on counter insurgency techniques, military electronics systems, explosive shells, and military aeronautics.

The CSIR plans to upgrade two IBM 370/158 mainframes following the announcement by the Reagan administration in March of a relaxation of controls on US exports to South Africa. IBM has denied knowledge of this transaction, claiming it has received no order for it.

According to its 1979 annual report, the Centre for Computing Services at the CSIR is projecting a 20% annual increase from 1982 to 1985 in the number of terminals connected to its mainframe systems, which include the two 158s and a CDC Cyber 750.

The CSIR, through several satellite institutes, provides consulting and testing services to both the military and Armscor, the State-owned weapons conglomerate.

US export controls forbid direct sales to Armscor but US corporations are permitted to do business with its subsidiaries and with the CSIR. Hewlett-Packard has supplied equipment to an electro-optics subsidiary of Armscor, according to the South African Computer Users Handbook.

The handbook also lists Leyland-South Africa, a firm producing Land Rovers for the police, as renting seven IBM machines. The African Explosives and Chemicals Industry, which is 40% owned by ICI and has constructed munitions plants for the South African regime, rents four IBM computers.

IBM equipment is also used for the computerised rail tracking system which transports arms to the Namibia war zone. About 90% of weapons and military equipment arriving at Grootfontein, a Namibian war supply base, come by rail.

The South African Defence Force, including troops illegally deployed in Namibia, relies on computers supplied by IBM, including a model 360 at Simonstown Naval Installation, according to *Management*, a South African publication.

A survey published by *Management* in 1974 revealed that the SADF also leased two model 370s. These were supplied before US export prohibitions came into force, and the law permits US suppliers to continue servicing the installations as long as parts containing 20% or less US-origin material are used. This can be interpreted in any number of ways and manufacturers' upgrade paths can allow new technology to be packaged within old shells.

The Directorate for Information System and Analysis uses IBM equipment provided before 1978, so continued servicing is permitted. The DISA is the South African military control and command system used for research, simulation projects, software development and tactical battle planning.

The South African Computer Users Handbook also says hardware from NCR, Burroughs, Hewlett-Packard and Data General is used by Barlows-South Africa, and its subsidiary, Marconi, producers of military-electronics. There have been reports that an NCR system is at the disposal of the Bantu Administration Boards, but NCR South Africa claims that it has not sold any equipment to the board.

Lindsey Peat
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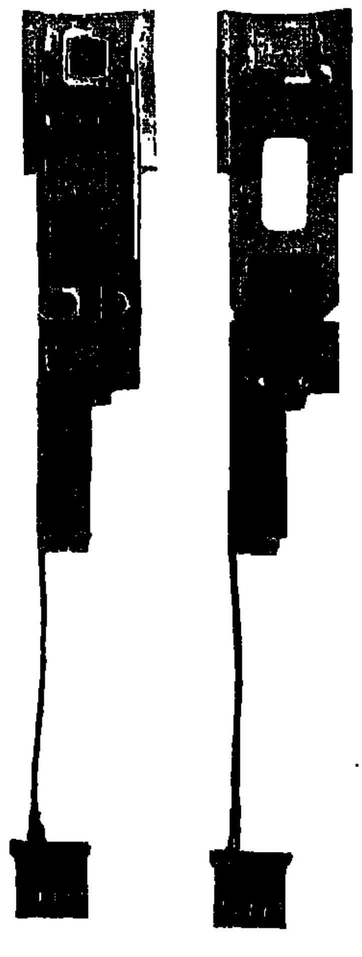

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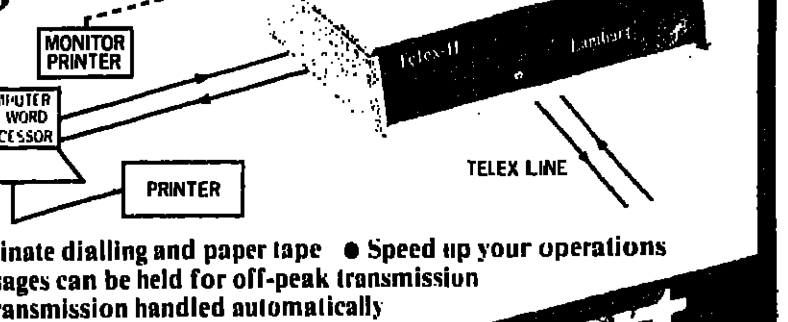

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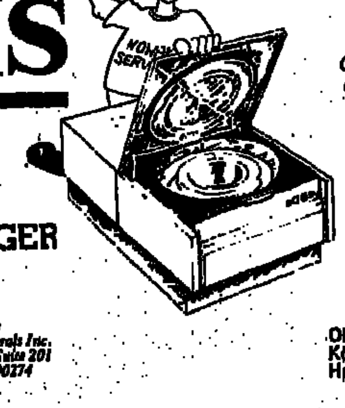

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SOFTSELL

DP experts must satisfy the micro's urge to communicate

SO FAR, DP has not been much involved with micros. User departments have been buying a lot of them, however, to run standalone applications such as spreadsheet analysis, or word processing.

Recently I've been looking at the use of personal computers among the largest corporations in the San Francisco Bay area, and it has become apparent that the micros do not stay hermits for long. They start communicating with other computers, and as soon as they do, they start to cause headaches that professional computer staff – in other words, DP staff – have to solve.

Most personal computers within large corporations are brought in to service a small number of requirements. First and foremost, they are used for electronic spreadsheet analysis with programs such as VisiCalc, SuperCalc, Multiplan and Calcstar. Following in demand is word processing using packages like Wordstar, Select, Applewriter, Easy Writer, then database with PFS, DBMaster, Visifile, and Datastar, and business graphics with Visiplot or PFS, for example. Traditional financial and general administrative packages such as those from MSA/Peachtree and Structured Systems Group are seeing much less action in the corporate market.

Micro users usually want to extend the capabilities of their systems.

Charles Hoerner, manager of office systems at Foremost-McKesson, a leading distributor of consumer goods, describes the way a micro is often used: "A financial planner buys one to do financial modelling with Visicalc. After a short time, he buys an add-on graphics package which generates line, bar and pie charts for use in reports and slide presentations to management. Then he might buy a word processing package like Wordstar, which greatly speeds up the production of reports. Lastly, he gets a database package to keep track of various important customers and leases".

So far, so good, provided we make the assumption that the different packages work together satisfactorily. Given that many other micros are being used in a similar way within the corporation, the stage is now set for communications problems. Here are some of the most common of these.

Spreadsheet to Spreadsheet. Here one user has developed an interesting model using a spreadsheet from one software manufacturer. Someone else hears about the model, and wants to put it on his micro, using a different spreadsheet package. The chances are that the two data representations will be different, requiring specialised conversion software to be written, or re-keying of the model.

Spreadsheet to database. One departmental machine has developed an interesting database – for example, about customers. Someone in another department wants to get a copy, to do spreadsheet analysis. Frequently, the data representation assumed by the database and spreadsheet packages will be radically different, again necessitating difficult conversion work, or laborious and error-prone manual data entry.

Word processor to word processor. People want to send documents and graphic images over telephone lines instead of waiting for mail delivery. This may be fairly easy if two identical machines running the same word processor are involved. If two different machines want to communicate, each using a different word processing package, there will be problems. For example, text representation protocols vary a lot, and special characters signifying underlining to one word processor may have an entirely different meaning to another.

Simple terminal emulation. Over the years, the DP department has spent a lot of time and money developing important applications on the corporate mainframe. Rather than have two terminals on their desk, users often want their personal computer to be hooked directly into the mainframe. At the least, DP is forced to allocate accounts and password/security privileges. Often further work must be done installing modems, communications lines, and terminal emulation software in the user's micro.

> ‘DP will have to extend considerable resources in preserving the integrity of the corporate database’

Data download. Personal computer users running spreadsheet and database programs often want to extract data from the corporate mainframe system. DP has to advise such users on where the appropriate data can be found, must decide whether or not to allow access to that data, and must advise users on the correct interpretation of the data.

Data upload. It is natural to start using micros as intelligent data entry devices, doing a certain amount of validation against a downloaded subset of the corporate database. Most corporations will not allow direct, interactive updating of the mainframe system, but RJE-type updating will become fairly common. Clearly, DP will have to extend considerable resources in preserving the integrity of the corporate database. Installation of bi-synchronous lines and handshaking software will also require DP's attention.

Report download. Many mainframe reports will be sent directly to a user's personal computer. This saves time and it allows them to be conveniently massaged – for example, delete some data, add footnotes, and so on – prior to distribution elsewhere. As previously discussed, each report will have to be converted to a text format consistent with the user's word processor.

Clearly, the standalone micro in the corporate world is definitely an endangered species. Solitary micros will have a short life expectancy. The first main conclusion we can draw is that for their own good, users should not be left without help in making the decision to acquire a particular personal computer configuration.

"Inevitably, they will want to extend the capabilities of their system, attaching it to the world outside," says Hoerner. "The people who can advise them on how best to plan for the future obviously have to be computer professionals, because many of the problems that arise are technical in nature. DP is the natural source of this advice and DP departments should expect to find themselves facing these issues whether they like it or not."

Ferris is a consultant in the UK and US providing marketing and planning advice to computer vendors, particularly in the area of software.

The wise DP manager will anticipate the problems before they occur, and start preparing now.

The second conclusion to be drawn is that corporations must set standards and guidelines for acquiring micros. Without such controls, the communications problems will multiply rapidly.

Jack Pfeiffer, in charge of Foremost's information services division, says: "We're very concerned about how micros will fit together. Integration is of paramount importance, and communications represent a serious problem in this regard. Corporations with many different kinds of machine, running many different packages from many different vendors, will soon find themselves deluged by communications difficulties".

Users wanting communication with other systems are in danger of being confronted with the familiar problems of mainframe software development: implementation will cost far too much, take far too long to develop, and be subject to failure whenever a system component changes.

David Ferris

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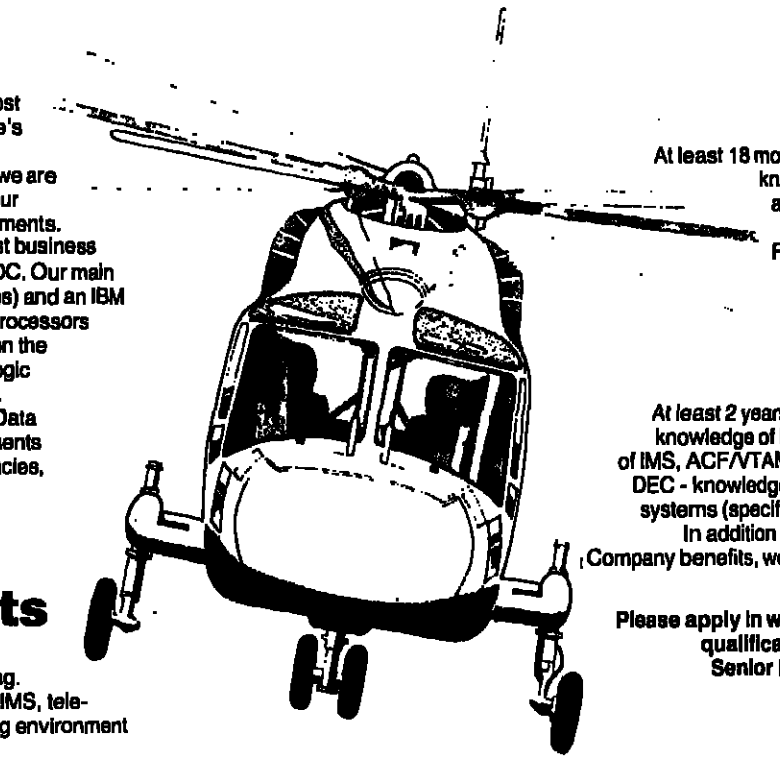

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The installation comprises twin large scale IBM Mainframes operating in a sophisticated DOS/VSE on-line environment using CICS VTAM and SNA.

Project Leader

You will be totally responsible for your own projects, which could number up to 10 at any one time. Your technical involvement will include developing two new systems, currently being introduced, and ensuring that enhancements and maintenance of existing systems are implemented. Reporting directly to you will be up to 6 personnel, and thus your duties will also cover the day to day managerial requirements of your department.

Programmer

Joining an existing team, you will extend your 2-3 years COBOL – CICS experience within a major insurance development project. You will find both the challenge and variety to hold your interest until you make use of the opportunities for advancement into analysis.

For further information and confidential discussion, please telephone Andy Beacham on 01-734 7394, or 01-223 8507 after 7 p.m. or at weekends.

A [illegible] GROUP COMPANY

43-44 GREAT WINDMILL STREET, LONDON W1V 7PA
TELEPHONE 01-734 7394 24 HOUR ANSWERPHONE

(1153)

We Specialise! Do You?

If so and you have at least 4 years experience, we'd like to hear from you. Needs range from software engineers, programmers and designers, up to managerial and consultancy level.

Specialist areas are: Industrial Control Systems, Communications, Office Automation, Compilers and Operating Systems, Radar Systems, Command and Control, Simulation, Military Systems of all types.

Hardware includes PDP/11, VAX, Argus 700, Intel, Zilog, Motorola etc., with relevant operating systems.

Locations: London, Homes Counties and some in Europe too.

Salaries from £8,000 to £18,000.

Stop Press requirements are for:

Systems Engineers with 5 years+ experience in military systems. Europe.

Communications Software Engineers with experience of PDP/11 or VAX hardware. Greater London.

Systems Engineer with 7 years experience in large systems support. Knowledge of communications protocols e.g. X25, HDLC, SDLC highly desirable. Southern Home Counties.

Software Engineer with minimum of 3 years solid experience in industrial process control or data aquisition. Greater London.

Project Leader with 5 years experience of Real Time, Micro and ASSEMBLER. Northern Home Counties.

Software Engineers with 3 to 7 years experience of compilers and operating systems or communications. Northern Home Counties.

For further details 'phone Beryl McLaren.

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Up to 11-00pm each evening and weekends

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your appointments register

Programmers

NCR/IBM/COBOL Insurance · Banking – London · H Counties · N Eng.	to £14K
COBOL/PL1/OS/CICS/IMS Commercial – H Counties · Midlands · Man	to £13K
ICL/VMEB or K/IDMS Commercial · Manu. – H Counties · Midlands · Man	to £11K
IBM SYSTEM 34/38 RPG London · H Counties	to £13K
DEC/HP/WANG/DG Basic · Cobol – Berks · Surrey	to £12K

Analysts Programmers

IBM/ICL/HP/COBOL Commercial – West London · Surrey	to £11K
IBM/ICL Stock control · Manufacturing – Man	to £12K
IBM/UNIVAC/ASSEMBLER Online · Database – Surrey	to £12K

Hardware/Support

CAD/CAM/GRAPHICS Technical Support – H Counties	to £15K
WINCHESTER DISC DRIVES Development Eng. Controls Systems – H Counties	to £12K

Systems Analysts

NCR/NEAT/COBOL Online – Berks	to £12K
CAD/CAM Real time · Modelling – Man · Essex	to £16K
IBM/ICL Financial · Insurance – Sussex	to £12K

Software Engineers

FERRANTI/ARGUS Berks · Surrey	to £12K
WINCHESTER DISC DRIVES Control · Systems – H Counties	to £12K
MILITARY SYSTEMS/RADAR Coral · Mascot – Surrey · Essex · S West	to £11K
PDP/VAX/INTEL Telecoms · ATE – Surrey · London	to £13K

Senior Appointments

PROJECT MANAGERS IBM · UNIVAC – Surrey	to £15K plus car
SALES EXECUTIVES Micros · Minis · Peripherals · etc – Nationwide	to £25K
CONSULTANTS Commercial · Banking – Berks · London	to £18K

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The Appointments Register

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ICL ANALYST COBOL MINI'S
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SURREY IBM ANALYST/PROG
OTHER H/W £9000 £7-£8K
SUSSEX RPG2/3

Rules of Play:

1. *Select a combination from the above which most accurately identifies with your experience and desires (note: most configurations are available).*
2. *'Phone Trish Barber with your answer on the number below or on Peacehaven (07914) 5805 evenings and weekends.*

Simple isn't it?

BL

Barry Latchford Associates Tel. (0444) 459815/6/7
Blair House, 7 Hazelgrove Road, Haywards Heath, Sussex RH16 3PH

CONTRACTS

We urgently require skilled and experienced *analysts* and programmers. Below are examples of contracts starting shortly. If you are on contract or are seriously considering taking up contract work forward a C.V. or contact Jackie Robbins today.

★ IBM	Analysts	Unit Linked Life Assurance
	Analyst/ Programmers	Assembler
	Programmers	CICS/COBOL
	Programmers	CICS/DLI
	Programmer	MARK IV/DLI
★ B6800-6900	Analyst/ Programmer	COBOL
★ DATA GENERAL	Programmer	AOS INFOS 2 COBOL

We are also interested in hearing from people with either CICS/COBOL, IMS/COBOL, DL/I, PL/I, MARK IV, or Assembler.

(1134)

FORCE 8 computer services
8 Mint Walk Croydon 01-680 3761

SOFTWARE ENGINEERS

Major communications technology projects
Up to £12,000 pa

IDEC, a key systems development centre for ITT in Europe has entered a dramatic phase of expansion based on a wide range of new high technology projects.

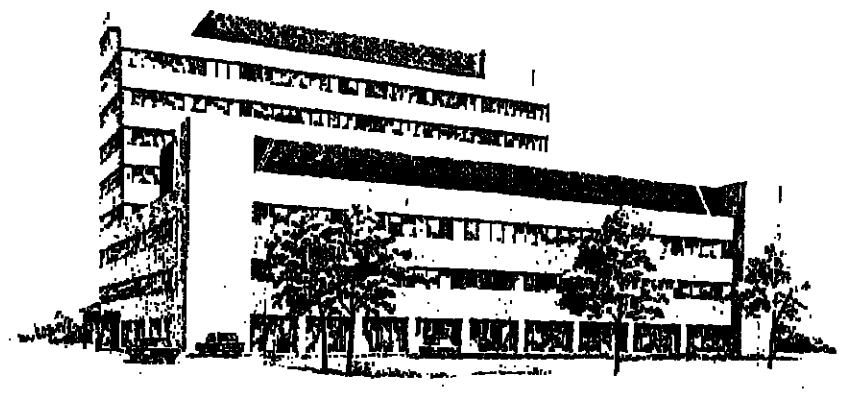
We are committed to excellence and innovation and recently have started work on a number of development programmes in communications technology for a major client located within easy travelling distance of our new multi-million pound office complex in Stevenage.

We therefore need to increase our current team by recruiting experienced Software Engineers who will initially work on assignment to these technically stimulating projects. The emphasis is on real time software, with projects involving applications software on large central processors; the integration of a total system; the development of software on modern 16-bit microprocessors e.g. the Intel 8086; the use of specialist communications techniques. Languages range from Assembler to high level languages such as PLM, Pascal and Coral.

In addition to a substantial five figure salary to fully reflect your experience and qualifications, we can offer a comprehensive range of large company benefits. There will be plenty of scope to gain exposure to the latest software technology, and you will be given every encouragement to develop your career within our international organisation.

Consider IDEC, and write with brief details of your career to date to Chris Turner at ITT-IDEC, Six Hills House, London Road, Stevenage, Herts SG1 1YB. Please quote ref: CW/200.

If you prefer, telephone him for an application form on Stevenage (0438) 726161.



ITT – IDEC ITT

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SYSTEMS AND PROGRAMMING

EMJAY COMPUTER SERVICES

JUNIOR PROGRAMMER COBOL

Six months commercial (not industrial placement). COBOL experience a must. Work on an IBM site using DOS/USE and CICS. IBM experience not essential but COBOL large mainframe essential. Enjoy good company benefits, career opportunity and security.
Salary: £6,000-£7,500 Contact Fran at Emjay

PROGRAMMER

Your job? You have 3 years' COBOL (preferably on mini machines). You want some analyst work with a lively team. You have worked in a time sharing environment and you are dynamic.
Salary: £10,000 You ring Fran at Emjay

ANALYST

3 years' RPG II/System 34. Visit users in a consultancy type role. Experience of feasibility studies through to design and implementation is a must. Some travel (on a day to day basis). Handle client relations in a confident way. Ready for the challenge?
Salary: £10,000 Ring Fran at Emjay

SENIOR PROGRAMMER PL1

This is an important career step, with increased responsibility. Good PL1 and supervisory skills will bring superb company benefits.
Salary: £10,000 Ring Fran at Emjay

SYSTEMS PROGRAMMER

MVS. 2 years' experience of systems programming/MVS could get you recognised. The greater your expertise/seniority the more this go-ahead company needs you. A vital role in the development of TP software will lead to other opportunities. Great company benefits.
Great salary to £12,000 Talk to Fran at Emjay

PROGRAMMER PL1

This excellent programmer will become an Analyst/Programmer. We require over 18 months PL1 (database a positive advantage). Immediately he will work within an analysts role. His professional, confident attitude will be invaluable in communication with other people.
Salary: £8,500 If this sounds like you ring Fran at Emjay

PROGRAMMER

COBOL. Step up to Analyst/Programmer. 2 years' experience on an IBM/COBOL site necessary. VM/CMS, CICS and PL1 experience are all advantageous.
Salary: £9,000 Step up now! Call Fran at Emjay

SENIOR PROGRAMMER

2 years' CICS. High standards required. Work involves application programming. Responsibility, a great career and security all provided. DL1 an advantage. Your expertise will be well rewarded.
Salary to £11,000 Impress Fran at Emjay

OPERATIONS

NETWORK OPERATOR

1 years' experience needed as Network Operator. Knowledge of Network Management System, i.e. CMS and experience of large Network Environment necessary. Use of diagnostic equipment wanted as well as good working knowledge of CICS. DOS an advantage. Great company, prospects and perks.
Salary: £7,600 Contact Maggie at Emjay

OPERATOR

IBM/DOS. 1 years' experience required. IBM 4300 DOS/VSE (VM preferred). 3-shift system. Central London site. Excellent perks.
Salary: £6,700 Contact Maggie at Emjay

TECHNICAL SUPPORT

OS/JCL. Knowledge of IBM facilities, i.e. IMS, VM, CICS, TSO essential. First line support role therefore must be technically competent. Ability to talk to people. Must be well presented. Excellent benefits.
Salary: £9,000 Speak to Maggie at Emjay

SENIOR OPERATOR

OS/MVS JS2. 2+ years' experience. JCL knowledge an advantage. Good promotion prospects. Professional site. 3-shift system.
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Develop Your Career with a Market Leader

Our client, the undisputed market leader with an enviable growth record in a specialised field of insurance, is currently seeking to recruit further highly-skilled DP personnel.

Based in CENTRAL LONDON, the powerful Data Centre configuration comprises IBM & Amdahl mainframes complemented by a series of PDP 11's at over 25 UK locations.

Due to continued expansion, the following career opportunities have been created:-

IBM
Deputy Database Administrator

c.£14000

For this position, we are seeking an ADABAS Specialist who ideally will *have had some exposure to some or all of the following: Data Dictionary,* NATURAL, ADAMINT & CICS. Reporting to the Database Administrator, you will be responsible for the generation & tuning of ADABAS database software and advising development staff on the design & use of database facilities.

Ref: J1418

IBM
Applications Support Analyst

c.£13000

An extensive operations background in an MVS environment, the implementation of ONLINE systems and good supervisory skills are prerequisites for this position. Responsible to the Applications Support Administrator, you will be primarily involved with the implementation & maintenance of systems, supporting 'users' of application software *packages, preparation of procedures and investigation/appraisal* of new techniques & software products.

Ref: J1419

DEC
Applications Support Analyst

c.£13000

Applicants for this position should possess an in-depth knowledge of RSX11M gained in a systems support environment together with a thorough understanding of DEC hardware/software; exposure to micro-based systems would be an advantage. Working in a small team, your prime responsibilities will be to support and maintain both system & application software on distributed processing systems.

Ref: J1420

In addition to an excellent starting salary, successful candidates can expect an attractive benefits package including Mortgage subsidy, season ticket loan, subsidised restaurant & free BUPA.

For full details of these challenging positions within a progressive organisation offering security, job satisfaction & pleasant working conditions, please send your CV to the address below or telephone now quoting the appropriate reference number.

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217-218 Tottenham Court Road
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(24 hrs)

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DEC VAX SYSTEL EXP. ESSENTIAL	S. LONDON	ASAP 93
DEC PDP 11 BASIC + 2 RSX 11	N. LONDON	ASAP 94
UNI 1100 COBOL TIP DMS	MIDLANDS	NOV 96
REALTIME PROCESS CONTROL (Any Mini Assembler Language)	N. LONDON	ASAP 97
IBM PL/1	LONDON	IMME 98
HEWLETT PACKARD 3000 COBOL	LONDON	ASAP 88
DATAPOINT DATASHARE	HERTS	ASAP
ICL 2900 VME IDMS	VARIOUS	ASAP CB100
ICL ME 29	VARIOUS	ASAP CB101
ICL DRS CIS COBOL	BERKS	ASAP CB102
SYSTEMS ANALYST with good insurance exp.	S. COAST	ASAP 87

Further details on request.

Please telephone Joan or Caroline on Amersham (02403) 22201 or send your c.v. to Plymouth House, London Road, Amersham, Bucks HP7 0HE.

ALL REPLIES QUALIFY FOR OUR MINI COMPUTER DRAW

(1177)

PROGRAMMING & SYSTEMS LTD

LONDON CALLING

SENIOR PROGRAMMERS AND ANALYST PROGRAMMERS
Salaries to £11,500 p.a.

S. P. Support is an established Midlands based Software house with an excellent reputation for providing a high quality comprehensive service.

We are currently looking for experienced D. P. Professionals to join our recently-opened London subsidiary. This is a rare opportunity to be involved in the start of an exciting new business venture, with the full backing of the SPS group.

In return for hard work, professionalism and commitment, we *offer a challenging career*, variety, and the opportunity for rapid advancement, together with an above-average salary.

Candidates with over 4 years D. P. experience, please send a C.V. or contact Dave Brooke for more information and/or an application form.

S.P.Support

S. P. Support (Southern) Ltd.,
29-30 Brook Mews North,
London W2 3BW.
Tel: 01-402 5007

(1096)

DEC Prog/Analysts

Beds. **to £10,000**

The working environment, the company and its products all rate A.1. with this client. Experienced RSX11/Macro 11 programmers will enjoy working on applications and systems for computer controlled analysis and measuring instruments. There are opportunities in special systems and standard product development. A physics degree would be useful. Some international travel.

Support Programmer

Herts. **c £9K + car**

We are seeking an experienced programmer who has the interest in and the aptitude for sales support. The work involves *visiting client premises* to provide advice, assistance and internal training to users. You should have commercial applications experience and preferably a knowledge of DEC/DIBOL. The client has a range of equipment which could provide wide interest.

Sales Exec S/W Products

London **to £20,000 O.Q.**

A leading International Software company is expanding its sales team in the fast growing software market. We would like to hear *from people with sales experience* who have in-depth knowledge of database systems, or similar. Many prestigious reference accounts available. Extensive product training given. The client has a highly respectable name in the industry.

Project Manager

Herts/Beds. **to £14,000**

There is an opening in a large and expanding development centre for an experienced systems software development person to *enhance his/her career. We* would like to meet people with good operating system software design experience capable of managing several teams in this area. You will be technical with man management skills. Reloc. assistance given.

Recruitment Consultant

Amersham **£10K-£16K+**

If you are bright with a friendly, gregarious nature and have sound experience gained in the computer industry, you could be *suited to a career in recruitment.* You must have confidence in dealing with people at all levels and be interested in helping others. Age 25-35 years. Attractive earnings are totally related to effort.

S/W and H/W Designers

N.Herts. **c. £9,000**

Working in the area of real time systems in automation applications, our client has a long *established reputation for quality* products. Additional experience is sought for a number of teams. Programmers will work at systems software level in Assembler plus high level language. Engineers will work on Motorola based interfaces for automation systems. Previous design experience required.

Applications Development

W. Herts. **£8K-£12K**

A well established mini computer manufacturer is expanding its technical development teams *within the applications development group.* Candidates are expected to liaise with clients in systems design and implementation. Experience in CORAL 66, or other block structured language is essential. Knowledge of M6800 micro range desirable. Positions exist for Programmers to Senior Designers.

Sales Execs. WP. and L.A N.

London and Wilts.
O.Q. £15K + car

Experienced sales people are required for our clients' office systems products. The W.P. sales person will operate from Swindon developing new business. The L.A.N. sales person will cover OEMs and advanced end users. Good computing and systems background necessary. The company has a well established name and excellent reputation with a strong technical backup capability.

Team Leader Comms S/W

Beds. **c £11,000**

We would like to meet candidates with a background in communications software development *preferably gained with a manufacturer or systems house.* You should be familiar with the common bisync. protocols and ideally have knowledge of X.25 and L.A.N. You will be given people and project responsibility in a strong engineering development group. Reloc. assistance possible.

Technical Support S/W

W. Msex. **£12K-14K + car**

Take this opportunity to join one of the most successful computer companies of our time. You will *need several years technical* software experience to include: real time, data communications and/or database systems. Analysts with banking or financial systems experience would also be of interest. You cannot fail to be impressed by this client. Higher salary but no car for City office location.

Office Systems

Swindon **£ Neg.**

Our client is a manufacturer and supplier of sophisticated micro based office systems. They have the following vacancies:

S/W Designers
H/W Designers
Production Engineers
Sect. Leader Ass'bly
Development Coordinator
Q.C. Validation Supervisor
P.D.S. Engineer
Supervisor Goods Inwards
Test Methods Engineer.

Field Engineers

London area **c £8K + car**

When the work of a field engineer in the micro based systems of today is similar from company to company, why change jobs? Not all companies are the same. If you would like to be in a sound, attractive company which has excellent products, a first class reputation and believes in its people, this is your chance.

Sales Exec Eng S/W

London **O.Q. £18K + car**

Ideal candidates will be graduates from Chemical, Civil or Mechanical Engineering. Your task will be to sell a wide range of applications software to engineering users in your own discipline. Our client operates an International bureau giving clients access to massive computing power. Previous sales experience not essential but computing knowledge is.

Customer Support Progs

Herts. **£8K-£12K + car**

Our client is experiencing dramatic growth due to the attractive and versatile nature of its 16/32 bit mini product line. They have a long established customer base and are very securely backed. We are seeking experienced programmers with knowledge of distributed data processing applications and computer communications to provide pre and post *sales* support.

S/W Dev Manager

N.H. Counties **c £15K + car**

Ideally, candidates will have experience in systems software development gained with a computer manufacturer, line management and a user environment. He/she will join a close-knit team where new ideas are sincerely welcomed. Main areas of responsibility are already mapped out. You will need a positive attitude to service and *will believe in quality development.* Excellent benefits.

UNIX Programmer

Herts. **to £11,000**

If you are a systems software programmer with experience working on a UNIX system, this could be your chance to give your career a significant boost. Our client wishes to appoint a UNIX specialist to join their engineering software group with responsibility for the in-house UNIX systems. DEC PDP and VAX experience useful. The successful candidate will be responsible for maintaining the system and for adding new facilities.

Comms. S/W Design

Herts. **to £12,000**

Develop your career and your existing communications software skills by joining a company already firmly established in this high growth sector of the computer industry. We are seeking software people with experience in developing 3270 compatible systems and as much experience *as possible* in X.25 and L.A.N. products. Attractive new office premises. Excellent prospects.

Sales Exec S/W Services

S. M'sex. ***O.Q. £15K + car***

Our client is a software house specialising in technical and scientific applications. They are seeking a sales person with a minimum of one years experience to join their team. The company has a reputation for high calibre staff who have above average experience in their field. Their *business is in the mini* (DEC) and micro applications area.

Software Specialists

Oxon **to £14000**

A major International systems house with an outstanding reputation in software design and development is seeking a range of people from programmers to project managers. We are interested in meeting people with a strong computer science background who wish to work on compilers, utilities and development aids. Relocation assistance will be considered.

Electronics Development

Cotswolds **to £11,000**

An electronics product development company with attractive modern premises in a pleasant Cotswold town requires engineers for new International applications projects.

Development engineers in analogue, digital and microprocessor systems (H/W and S/W).

Transducer engineers in high volume high reliability applications for analogue interface circuit design. Small co. environment but with strong large parent. Reloc. assistance possible.

Open letter to technical and commercial job seekers at all levels:

We are here to help you. Our free service to you is advice and counsel in identifying the most suitable position for the development of your career. Our consultants have held senior positions in the computer industry. They have the experience to understand your needs. If we do not have the position you want, we are prepared to help you find it. Why not accept this invitation to talk over your ideas with us.

Write or telephone (02403) 28383 during office hours – we are always ready to discuss these and many other interesting positions.

Evenings and weekends only: Terry Harvey – Great Missenden (02406) 4705

(1178)

HR

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Hill House, Hill Avenue, Amersham, Bucks. HP6 5BQ. Tel: 02403 28383
London office, Regent Street, W1.

Programmers & Analysts Contracts

SAUDI ARABIA

We have a number of assignments for IBM MVS, COBOL, PL1 & FORTRAN people for the position of Programmers, Analyst/Programmers, Analysts and Systems Programmers. All positions are one year extendable contracts offering £20-25,000 p.a. tax free, PLUS Exceptional benefits absorbing all living costs. Call June Morley for further details. Ref: J779

Process Control Software Programmers
Herts

Development of realtime applications software; 6 months duration starting A.S.A.P. Ref: L823

IBM 8100 Programmers, Systems Programmers
UK, West Germany

We have a number of current and future assignments up to twelve months duration. Experience in either COBOL and/or ASSEMBLER languages is preferred. Ref: N795

IBM COBOL IMS ADF Programmers
Kent & Surrey

We have a number of development assignments starting in October; 3 and 6 month durations. Call June Morley for further details. Ref: J792 & J728

IBM System 38 RPGIII
Middlesex

Programmer required with good experience of RPGIII for this 8 week contract starting immediately. Ref: E820

SEL 32 MPX32
Belgium

2 Analyst/Programmers required with experience of above machine and O/S. ASSEMBLER essential and knowledge of FORTRAN and process control advantageous.
Start date: 1st November 82 or earlier, 6 months extendable. Ref: E821

PDP11/MACRO 11
Berkshire

2 Programmers required A.S.A.P. until the New Year with good MACRO 11. Will be working on a customised access control system. Ref: E822

PDP 11 MUMPS
Holland

Programmer/Analyst required with good MUMPS programming experience. Experience with ADABAS as well would be of especial interest but not essential. Ref: E762

Datapoint
West Midlands

Programmer or Analyst Programmer required until the end of the year. Immediate start date. Databus/ARC. Ref: S815

Senior Fortran Programmer
Oxfordshire

Good experience of FORTRAN (min 2 years). Immediate start date, initially for 6 months - probably to run for 18 months. NORD - 100 advantageous but not essential. Ref: S817

Data General Eclipse Programmer
London

Good experience of COBOL and INFOS running under A.O.S. Supplies and General Ledger experience advantageous. Start date in mid October – initially for 6 months. Ref: S818

MINI CONTRACTS

If you are looking for a contract in any area and have the following experience: HP3000, Wang VS, PRIME, TI 990, NIXDORF, ELLIOTT or any mini computer experience, call Suzanne Reuben for further details.

Operations

CONTRACTS

SHIFT LEADER Up to £17,000 pa
IBM 3033, MVS/JES 2. 1 year. Saudi Arabia. Ref: K139

OPS MANAGER
B6800/6900, MCP. 3 months. North West. Ref: K140

PERMANENT

NETWORK OPERATOR Up to £6,700 pa
DOS/CICS. London. Ref: K136

SENIOR OPERATOR Up to £8,900 pa
IBM 4341, DOS/VSE, CICS, POWER. Essex. Ref: K137

SUPERVISOR Up to £9,000 pa
IBM 370s, DOS/VSE, POWER/VS. Kent. Ref: K138

OPERATOR Up to £6,700 pa
B6800/6900, MCP. London. Ref: K132

OPERATOR Up to £7,000 pa
ICL 2960, GIII, DME. Berks. Ref: K131

OPERATOR Up to £5,967 pa
IBM 4341, OS/VS1. Berks. Ref: K141

Knight

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14 Old Park Lane, London W1Y 4NL
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Strategic Consultancy
Greater London : Pkg to £19K

The **Communications Division** of a leading consultancy has vacancies for a number of **Senior Consultants.** Ideally, you will be aged 30-35, possess at least one degree and have excellent verbal and written communications skills. Your industrial experience should be such that you will not only be technically competent but also have an in-depth knowledge of the latest developments in the communications field and their likely, long-term, market impact. Familiarity with the ISO-OSI reference model is highly desirable, as is an appreciation of either satellite communications or Office Automation and Teletext systems. Providing long-term consultancy services to the public and private sectors of industry, the successful candidates can be assured that they will remain at the forefront of technical developments.

Ref: L/40/A

Micro Software Manager
Inner London : Salary to £18K

A rapidly expanding supplier of Business Systems and Network Products is seeking a Software Manager for its London based activities. Candidates, aged 27-35 years, should have a thorough appreciation of the diverse micro-computer market place and in particular of 16 and 32 bit micro-processor based network systems. You may well be currently employed as a Systems Manager or Sales and Support Manager with a Computer Manufacturer or Turnkey Systems House. In addition to highly developed technical skills you should thrive on concentrated hard endeavour and be prepared to travel both nationally and internationally.

Ref: L/40/B

Financial Systems
Central London : Salaries to £16K

A market leader in the supply of communications systems to the financial sector is currently seeking additional Software Designers, Systems Designers and Consultants to be based at its Central London Headquarters. Suitable applicants will be graduates, aged 25-35 years, who have at least four years' systems and/or software design experience within either a Consultancy or large User environment. You should offer an in-depth knowledge of message/packet switching, data communications or networking. Candidates who have additional experience of financial applications e.g. automatic tellers, electronic funds transfer, commodity broking, futures markets or foreignexchange systems will be of particular interest to our client.

Ref: L/40/C

Comms Consultants
Inner London : Salary to £18K

A London based Systems House and Consultancy is seeking several Data Communications and Network Consultants. Generally, all candidates should be educated to at least B.Sc. standard and have subsequent relevant work experience amounting to at least five years. Of particular interest will be those who have an in-depth knowledge of communications protocolling techniques – X25, SDLC/HDLC. Since these positions will entail a high degree of customer contact at director and senior management levels, good personal presentation skills are invaluable. You will be called upon to provide a total consultancy service from the strategic study aspect through to written recommendations, on-site implementation and customer acceptance.

Ref: L/40/D

RTL/2 Programmers
Italy : Pkg to £15K

Our client, an internationally recognised Systems and Software House is currently seeking RTL/2 Programmers for its Italian operation. Suitable applicants will be graduates with a minimum of two years' real-time programming experience on a PDP 11 configuration. Fluency in RTL/2 is essential, but candidates who offer additional skills in Macro 11 or Pascal are particularly encouraged to apply. These positions offer excellent long-term career prospects in the fields of process control and data communications. Italian language ability will not be necessary since English is predominantly spoken.

Ref: L/40/E

VAX Progs/Designers
London & E.E.C. : Salaries to £15K

A leading International Systems Company specialising in the development and sale of communications software is seeking Programmers and Designers for its Central London and overseas facilities. Suitable candidates should hold a numerate degree and have two years' subsequent programming or systems design involvement. Fluency in Fortran is essential and it is preferable to have had exposure to either a PDP 11/RSX-11M or VAX/VMS configuration. Candidates who are fluent in a foreign language especially French or German will be of particular interest to our client. A degree of mobility is necessary since most positions involve both European and Transatlantic travel.

Ref: L/40/F

Compiler Development
London & H. Counties : Salaries to £14K

A major Systems and Software House has recently embarked on a large new project requiring the expertise of a number of Compiler Development Specialists. Suitable candidates will have participated in the development of either a Pascal or Ada compiler, preferably for 16-bit micros. Familiarity with all phases of compiler development is strongly desirable with particular emphasis placed on Code Generation and Optimisation. Whilst specific responsibilities will vary, depending on the ability and experience offered, all successful candidates will be involved from initial proposal stages through to the creation of a fully self-supporting compiler.

Ref: L/40/G

CORAL 66 Programmers
Herts : Salaries to £12.5K

Applications Programmers and **Designers** are currently required by the technical software division of a leading Hardware and Software Systems Supplier. Suitable applicants will offer a minimum of two years' CORAL 66 programming expertise in a real-time mini-computer or micro-processor environment. Whilst there is no stated hardware preference, knowledge of Motorola 6800 or 6809 micros would be a distinct advantage. It is anticipated, particularly for the more senior positions, that candidates will have been involved in the design and implementation of at least one complete system. You should offer a knowledge of communications, avionics or medical applications or have a desire to move into one of these fields.

Ref: L/40/H

UNIX Specialists
Inner London : Salaries to £12K

An internationally recognised supplier of Turnkey Systems has recently introduced a new range of products based around the UNIX operating system. The Company now has a requirement for a number of additional UNIX orientated Consultants and Design Specialists within its Central London facility. Suitable respondents should hold a numerate degree and be fully familiar with not only UNIX but also C, Pascal and an Assembler language. Of additional interest will be those who are currently involved in the development of a system based around a 16 or 32 bit micro-processor. The majority of development work will take place in Central London. However, a degree of mobility is essential for client visits.

Ref: L/40/I

Technical Authors
H. Counties & E.E.C. : Pkg to £13K

A leading Systems and Software House, with offices in the Home Counties and at several EEC locations, is currently seeking additional **Technical Authors.** It is essential that all applicants have designed and written User documentation for at least one software or hardware product within either a Systems and Software House or Computer Manufacturer environment. A good command of the English language is obviously important as is the ability to liaise with both technical and non-technical personnel. Candidates who offer some programming experience will be given the opportunity to progress into software development.

Ref: L/40/J

ADA Programmers
Home Counties : Salaries to £11K

Software Designers who wish to work in a product-orientated Research and Development centre are required by one of our clients. Working at the forefront of current software developments, suitable applicants will be engaged on real-time systems such as air traffic control, target identification and simulation systems. All respondents must possess a good first degree in a computer related subject followed by at least eighteen months' industrial experience. Fluency in Pascal, Algol or RTL/2 is sought, with a salary premium attached to those who have hands-on experience of ADA, used in a development environment. Advanced software development tools are available to successful candidates able to meet our client's stringent requirements.

Ref: L/40/K

Mini/Micro Software
N.W. England : Salaries to £10K

Programmers and Analyst/Programmers, with a minimum of [illegible] years' post graduate experience are urgently required by a U.K. based Systems and Software House. Fluency in a high level language such as Fortran or Pascal and an Assembler language is required of all respondents. Whilst particular hardware experience is not sought, a preference will be shown to applicants with exposure to PDP/11, Argus 700 or any leading micro-computer. Applications areas of interest are one or more of: process control systems, message and packet switching; civil and military command and control systems. All positions are on a permanent career basis.

Ref: L/40/L

Control Systems
Hants/Surrey : Salary to £12K

On behalf of the Development facility of a leading multi-national corporation we are seeking several Systems Engineers and Software Programmers for permanent career positions. The outline criteria include an in-depth knowledge of two or more of. (a) Pascal, (b) 'C' and UNIX, (c) pattern recognition, (d) design and production of hardware and software interfaces. All candidates should offer an H.N.C. or B.Sc. standard education and have two years' post-college work experience where some or all of the above software products have been in active use or development.

Ref: L/40/M

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(1140)

London Scottish Finance Corporation plc

IBM 4331 — **DOS/VSE**

PROGRAMMER
(RPG2) circa £8,000 p.a.

OPERATOR
(no shifts) circa £6,000 p.a.

The above experienced staff are required by London Scottish Finance Corporation PLC, a publicly quoted finance company with a record of consistent growth. In order to cater for the company's dependance on its Data Processing facility we are planning to convert from our existing system 3's to an IBM 4343 to be delivered in December 1982.

This is an ideal opportunity to join a new and expanding 4300 Data Processing department, in addition to the excellent salary, you will enjoy a benefits Package which will reflect the importance of the jobs.

Please write or telephone:

Mr. J. Grimes, Director of Computer Services, London Scottish Finance Corporation PLC, Speakers House, 39 Deanes Gate, Manchester M3 2BE Tel: 061-834 2861.

(1184)

HERTFORDSHIRE COUNTY COUNCIL

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Welwyn Garden City, Herts.

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A

LECTURER I

with experience of commercial data processing and preferably ability to also teach one of the following:
'O' Level Mathematics
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Forms and further details from The Principal, de Havilland College, The Campus, Welwyn Garden City, Herts.

(1165)

UNIVERSITY OF ST. ANDREW'S

ADMINISTRATIVE AND LIBRARY COMPUTER UNIT

Analyst/Programmer
(Grade 1A £6,375-£11,105)

Applications are invited for the post of Analyst/Programmer in the Administrative and Library Computer Unit which provides a computing service for the University Library and the Administrative departments. The equipment consists of a CTL 8050 and a twin processor PDP11/34A. The systems are terminal based with interactive development and transaction processing. Work is currently in hand in the following areas: (1) student records; (2) financial applications; (3) Library circulation control.

It is expected that the successful candidate will be involved in any or all of the project areas. Experience of this type of work or Systems Programming experience would be an advantage as would experience of COBOL and/or CTL or DEC equipment. A degree or equivalent professional qualification would be an advantage but is not essential.

Starting salary at an appropriate point on the above scale according to age and experience.

Applications (two copies preferably in typescript) with the names of three referees should be lodged by October 29th, 1982 with the Establishments Officer, The University, College Gate, St. Andrew's, Fife KY16 9AJ from whom further particulars are available.

(1164)

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FIELD ENGINEERS – S. London/Croydon, Birmingham c£9.5K + profit share + BUPA + 2L Car

An outstanding opportunity to join a major force in the fast developing CAD/CAM market. Our clients design, manufacture and market turnkey systems on an international scale.

Substantial growth in the installed base within the U.K. means additional engineers are needed in the Croydon/S, London and Birmingham areas to maintain complex mini-based systems.

You will have at least two years' experience on minis or mainframes and peripherals working to component level, with good customer relation skills. In return, our clients offer substantial benefits and an attractive career structure.

Ref: C231

CUSTOMER ENGINEERS – London/Newcastle £12K + Car + Benefits

Our clients meteoric 95% growth rate is a reflection of the respect and esteem held for their highly advanced, resilient mini computers.

If you possess good overall systems ability with an interest in software and are looking for an employer that offers stability yet proven career opportunities, then this manufacturer has a lot to ofer.

In return they desire not only technical ability but a sound mature approach from their engineers.

Initially they provide two months' product training in America before entering the field.

Basic salaries are £8.5-£10K + 2 litre car + paid overtime + standby + BUPA + stock options.

Ref: C233

CUSTOMER ENGINEER – London To £9K Basic + O/T + Car + Benefits

Expansion of the field service team in the South East has created a vacancy for an engineer to maintain a major manufacturer's mini-based systems in West and Central London.

Previous hard disc experience and component level ability are essential and data comms knowledge would be an advantage.

This successful British Company will provide full training, an excellent benefits package including BUPA cover and long term career prospects for the right person.

Ref: C232

SERVICE ENGINEER – Birmingham c£11K + Car

A challenging position offering overseas travel and the chance to work on both mini and micro systems. The company is Birmingham based and is currently expanding at over 100% annually. The working environment combines in-house maintenance of several mini computers and field maintenance on business micro-systems to component level.

The ideal candidate will have several years' experience on minis with systems level capability, able to work from schematics and preferably ONC/HNC qualified. The preferred age range is 26-30 years.

Ref: C234

For an informal discussion and further details please ring Keith Denovan or Jill Bartlett on 01-637 9611.

CONTRACTS

IBM
COBOL CICS DL/1 – London/Home Counties
PL/1 DOS CICS – London
CPG Programmers – London
COBOL ADF – London/Surrey
ADABAS NATURAL – London
COBOL JACKSON – London/Home Counties
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HOLLAND
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(English speaking environment – Amsterdam)

PERMANENT

DEC VAX FORTRAN – London
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DEC MUMPS – London £9K – Benefits

PERM
IBM SYS 38 Progs, London/Kent to £12K
USA/CALIFORNIA Wang Analyst/Progs. to $35K
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THESE LISTINGS ARE OUR UP TO THE MINUTE VACANCIES THAT ARE CURRENTLY AVAILABLE

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Tel: 01-387 4549
Telex 261967

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AND
ASSOCIATES

NEW MULTI-MINI PROJECT IN COLOUR

Our Client is a leading commercial organisation, part of a large British group of companies, based in Central London. They are developing sophisticated new on-line applications to run on 4 loosely linked Honeywell DPS6 model 76 minis, with 15 256 mb disc drives, 4 printers, 4 tape drives and up to 100 TDS colour terminals. The system has been designed around a comprehensive underwritng, claims and accounts system. They now need the following additional computer professionals to further develop and install the systems.

SENIOR PROGRAMMERS TO £9,500 + BENEFITS

For the Senior Programmer positions candidates should have a sound DP background to include a good working knowledge of Honeywell DPS/LEVEL 6 using COBOL and/or SCREENWRITE.

The Programming positions are open to candidates with 18 months + experience some of which should have been gained on a Honeywell DPS/LEVEL 6 machine.

Specific knowledge of insurance or on-line applications will be advantageous.

The Client has now reached a critical stage in the project and is dedicated to recruit the right individuals to join a young and dynamic team.

To find out more about these excellent career opportunities please contact Mike Harmer

PROGRAMMERS TO £8,500 + BENEFITS

- ☆ MORTGAGE SUBSIDY (after qual. period)
- ☆ TRAVEL SUBSIDY
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- ☆ SPORTS & SOCIAL CLUB

(1171)

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01-404 4821

SYSTEMS & PROGRAMMING

TEAM LEADER

LONDON IBM COBOL To £14,000

Our client, an international company with impressive offices throughout Europe and the States, seeks to recruit a team leader/senior analyst programmer. We have been retained to engage an individual with a minimum of four years in data processing, preferably at least 3 years programming with some analysis experience. Candidates should have either CICS or Database, although training will be offered where necessary. The company retains IBM 4300 mainframes running under both DOS/VSE and MVS using Cobol, CICS and IMS. This vacancy offers an excellent opportunity for an analyst programmer who wishes to make a career move. A negotiable salary of up to £14,000 is offered which is dependent upon experience, with an early review. In addition they offer an impressive benefit package. S.6663

PROGRAMMERS

COBOL

LONDON & MIDDLESEX To £12,000

We have currently been retained by this well known company with offices in Middlesex and the City who are expanding. They need to recruit programmers to supplement their large development group. They retain a wide range of hardware including IBM and Minis. Potential applicants require a minimum of 2 years commercial Cobol experience; ANY Database or TP experience would be an advantage but FULL TRAINING is offered where necessary. These positions offer a superb opportunity for programmers wishing to broaden and consolidate their experience. Successful applicants will be able to work on a variety of hardware and projects, working with large on-line systems using Datascene. Career progression is envisaged either towards team leader – programming or towards analysis. Benefit package includes profit sharing, pension and life assurance schemes with regular reviews. S.6594

BUSINESS ANALYST

KENT IBM To £12,000

This internationally famous company based in North Kent has a vacancy for a Business Analyst to complement their already well established D.P. installation team. The client has been using computing power power for many years and currently employ IBM 3031 machines. With this hardware they use MVS with CICS and DATABASE. Their current requirement is for a BUSINESS ANALYST with a minimum of 2 years experience which should have ideally covered financial systems. A preference will be shown to those applicants with IBM and Database experience but TRAINING OFFERED where necessary. In return, the company offers a generous salary and excellent benefits which include, BONUS, Non Contributory Pension Scheme and Relocation if required. S.6679

ANALYST/PROGRAMMER

CITY BASIC/COBOL £11,000

BANKING, Training, a variety of hardware and a mortgage subsidy are all included as part of this newly created vacancy. Our client, a major merchant bank based in the heart of the City, wish to add an experienced Analyst/Programmer to their department. A good programming background of at least 4 years commercial experience, some of which should have been on DEC or VAX equipment is a necessity. The successful candidate will show an aptitude and a readiness to move into system design. Previous exposure to either banking or financial systems would be a definite advantage. Applicants will be expected to work in a small team developing major new systems. Above average benefits which include a S.T. loan, BUPA, loan facilities and regular salary reviews are all offered with this position. J.6574

ANALYST/PROGRAMMER

E. LONDON COBOL c.£10,000

A MORTGAGE SUBSIDY is only one of the many substantial benefits offered by this progressive international company. This Analyst/Programmer position is open to applicants who have experience as part of a team which has carried a small system from initial stages through to implementation. This opportunity offers a wide variety of development projects. The company retains a medium range Burroughs mainframe computer using Cobol and Database. Successful applicants must be proficient in Cobol with a knowledge of Database concepts. Burroughs experience is preferable, although training will be given. Candidates should have experience of responsibility and have been involved in specification writing. In return the company offers excellent surroundings in modern, spacious offices and many other benefits including L.V.'s, Pension and Life Assurance schemes, S.T. loan and sports club facilities. J.6476

ANALYSTS/PROGRAMMERS

LONDON HONEYWELL Up to £11,000

Two companies, both located in Central London have engaged our services to find Analysts and Programmers for their installations. A wide variety of very attractive allowances are offered with these positions. The people who will be put forward for consideration regarding those openings will be fully experienced in working with Honeywell hardware. Cobol is the main language, however, competence in Screenwrite would be an added advantage. Database experience will also be looked upon very favourably. Programmers will have 2-3 years commercial experience, people at the more senior level will be expected to show in excess of 3 years, solid data processing experience. MORTGAGE ASSISTANCE, free lunches, travelling allowance and regular bonus schemes will be available to successful candidates who are accepted for these positions. J.6625

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(1168)

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This is our recruitment consultancy company, which provides an excellent creative advertising service and a professional interviewing and shortlisting service to clients worldwide.

We are looking for senior and junior sales persons to join a very successful team to promote our services.

You will be bright, enthusiastic and articulate, with a professional approach to selling. We will be looking for qualities of commitment, loyalty and honest endeavour in addition to the flair necessary to make you one of the top money earners in the services industry. It is likely you will be aged between 23 and 35 with a background in recruitment or advertising.

Span Computer Contracts
This is our contract supply company which provides support in Systems and Programming.

Span enjoys an excellent reputation with both clients and applicants and boasts a very successful record since 1976. We intend to continue this success, consequently we will be interested to hear from individuals who know they can sell in this highly competitive market.

In both instances the earnings potential and career prospects are tremendous. We are an international group, with offices in Australia and New York and have an exciting expansion program.

For a confidential discussion, please ring Douglas Woodward on 01-734 7394 during working hours, or on 01-627 2813 evenings or weekends.

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If you're confident that you possess those qualities, you should be at least in your late 20's with a minimum of 5 years' IBM background, 3 years' systems programming experience, a sound working knowledge of DOS/VSE, CICS, COBOL, Assembler and, ideally, a Computer Science degree. Effective communication skills are vital, as is a methodical approach.

Reporting to the Technical Services Manager, you'll manage the Technical Support Department, heading up a compact team. Without going into exhaustive detail, your primary task is to implement and maintain an environment in which Extel Computing's services can be efficiently developed and operated. The installation consists of multiple 4341's, Series/1 supporting a network of over 175 terminals.

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The Middle East has been the scene of vast business expansion in recent years resulting in an almost constant demand for skilled technical staff in a variety of areas. Not least of these has been Data Processing and our client, with their network of sophisticated IBM mainframes, is looking for a number of skilled computer professionals.

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1. **Shift Leaders** with at least 4 years experience of IBM 3033's and 370/168's using MVS, JES 2 or 3, TSO and other software facilities associated with a TP network and database environment.
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SYSTEMS & PROGRAMMING to £20K

Analyst/Programmers with 3-5 years experience in two or more of the following areas:-

a. One or more of the following languages:- PL/1, FORTRAN and MARK IV.

b. One or more of the following applications: Materials Supply, Financial & Administrative, Oil & Gas Operations and Engineering Systems.

c. One or more of the following facilities: TSO/SPF; IMS DB/DC and/or IMS DB and ADF; Graphics experience or experience of simulation, e.g. GPSS or MPSX.

These posts are initially on bachelor status and candidates should be educated to degree or HNC level.

Living costs are assisted by subsidised air conditioned accommodation, free food, generous allowances on vacation, flights, etc. and excellent company operated recreation facilities are provided.

Contact Penny Stock (or Kay Stebbings for Operations) on 01-836 8411 or write to Computer People London Limited, 68-69 St. Martin's Lane, LONDON WC2N 4JS quoting reference C 628.

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Systems Programmer c.£10k+ W.Midlands.

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The successful candidate will have the ability to think on his/her feet, isolate and respond to everyday problems and contribute new ideas. Decisions in this company are made quickly and effectively, and this means a refreshing and challenging environment for dedicated d.p. professionals.

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For further detailed information telephone the company's recruitment consultants [illegible]

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Substantial Salary, + Bonus, + Prestigious Car

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Microsoft, leaders in microcomputer software, well known for such respected products as MBASIC, MS-DOS, XENIX and MULTIPLAN, have recently set up a fully owned European subsidiary based in Hertfordshire. During the coming years they expect to introduce many new products to dealers and distributors through the Consumer Division and to considerably expand their European Organisation.

The Consumer Division, which markets such products as the Apple 2 Softcard, Ramcard, 8-bit languages and Manager Series, requires a strong Business Manager, whose knowledge, enthusiasm and technical ability will enable him to set up a European manufacturing facility and to drive in an efficient and well organised manner the distribution and sales of consumer products throughout Europe. The Consumer Division Manager will report to the European Director of Marketing.

The role will be to manage consistent growth within the Consumer Division in a rational and co-ordinated manner. This will demand very strong managerial skills in the areas of sales, marketing, manufacturing and communication. It is likely that the applicant will be currently involved in a marketing or sales management position within the sphere of micro-computer hardware or software, having gained a sound technical awareness in previous positions.

The position of European Consumer Division Manager demands fluency, not only in English, but also French or German.

The position commands a substantial salary, a performance related bonus, prestigious company car, non-contributory health insurance and life insurance.

To apply for this position, either contact **Martin Stainthorpe** on **021-236 3781** (24 hour answering service) or submit a detailed C.V. to him at the Midlands & International Office.

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Burroughs Programmer Algol	North	3 Months +	November
HP 3000 Progs + Analysts Cobol	Various	3-12 Months	Oct, Nov
IBM Proj Leader/Analyst Good exp of focus	Scotland	6-12 months	Asap
VME Analyst/Designer Good TP-MS	London	5-6 Months	Immediate

VME communications and S3 expertise required for long-term contracts in the Midlands, various start dates, excellent rates.

PERMANENT

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(1209)

Computer Shift Controller IBM 3081

Circa £10,500 p.a. plus B.U.P.A.

As a result of internal promotion we now wish to appoint a Shift Controller within our expanding computer services division. Our plans for 1983 include moving to a purpose built computer complex which is currently under construction.

It is therefore essential that the successful candidate is capable of managing a team of shift staff in a fast moving service orientated environment. Based at Leicester the installation provides a full range of computer services to a large number of companies within the Sears Group.

The installation comprises an IBM 3081 and a 3031 AP under MVS JES3 supporting advanced peripherals including three IBM laser printers and a large local/remote network.

As a large and successful retailing group with a clear commitment to computer services we provide a secure working environment and in addition to the salary indicated there is an excellent range of fringe benefits including free BUPA and regular salary and merit reviews.

If you are interested in this challenging opportunity please write or telephone quoting reference HO90, for an application form to The Senior Personnel Officer, British Shoe Corporation, Sunningdale Road, Leicester. LE3 1UR.

British Shoe Corporation

The region is rich in computer sites, short of experienced staff

Boris Sedacca found a surprising number of vacancies at sites in the Midlands

BELIEVE *it or not*, Birmingham is considered to be at the tip of the EEC's "golden triangle" of European industry. Birmingham and the surrounding Midlands region is rich in computer installations starved of experienced personnel.

But surprisingly, not all employers look for experience only and close their doors to trainees. Some have had their hands forced by the shortage into providing the experience which they were looking for in the first place. Others need a type of experience so specialised that the average experienced person is unsuitable, and needs to be trained anyway.

An example of the latter case can be seen at the *Queen Elizabeth Medical* Centre at Edgbaston, Birmingham. "Staff movement has been slow and we have little requirement to recruit people at the moment, but we normally recruit people at the bottom and move them up the ranks," said DP manager Peter Hills.

"We get about half-a-dozen applications a week from people who have come off a TOPS course, and from time to time, a few are selected for interview.

"From that lot, the best are taken on to fill jobs which come up," Hills said. TOPS training courses in *the region* are provided by organisations like the Control Data Institute, which Hills says provide a good grounding for the jobs available and turn out trainees of a high calibre.

"Our recruits are trained on Univac assembler for specific medical applications so one does not find people outside the organisation with the relevant experience."

The Centre runs an old Univac 418/III mainframe, one of only three installed in the UK, which Hills describes as "a damn good machine", as well as two smaller Univac 9300 machines, two Hewlett-Packard 3000 and two CMC Reality minicomputers.

The 418 has its roots in a National Aeronautics and Space *Administration* design with strong real-time facilities for medical work. The Centre employs over 50 staff.

"If we wanted to recruit experienced people, we could not offer them enough," Hills said. "Health Service pay scales are not very attractive compared with other sectors."

The City of Birmingham Computer Centre is also finding it a bother to get experienced programmers. "If we advertise 10 vacancies, we will get three of them filled on average," said DP manager Ernest Wilson.

"It is not as much of a problem getting systems analysts because we are not always looking for so many of them. It all depends on the selection criteria applied and I believe ours may be a little more stringent than most.

"For example a trainee analyst will need a university degree at least, while a trainee programmer will need a couple of A-levels and a trainee operator five O-levels, although we may overlook these requirements if the candidate has some experience," he said.

"But because of the difficulty we have in finding experienced staff, we have taken a deliberate policy of hiring more trainees, but their numbers are fixed according to the number of development teams available.

"Otherwise, we are looking for about half a dozen experienced programmers and senior programmers right now," concluded Wilson.

> **‘TOPS training courses are provided by organisations like Control Data Institute, and give a good grounding for the jobs available, turning out trainees of a high calibre’**

Kalamazoo Computer Services, one of the largest DP employers in Birmingham with over 400 computer staff has just taken on two trainees and is now looking for four more experienced staff.

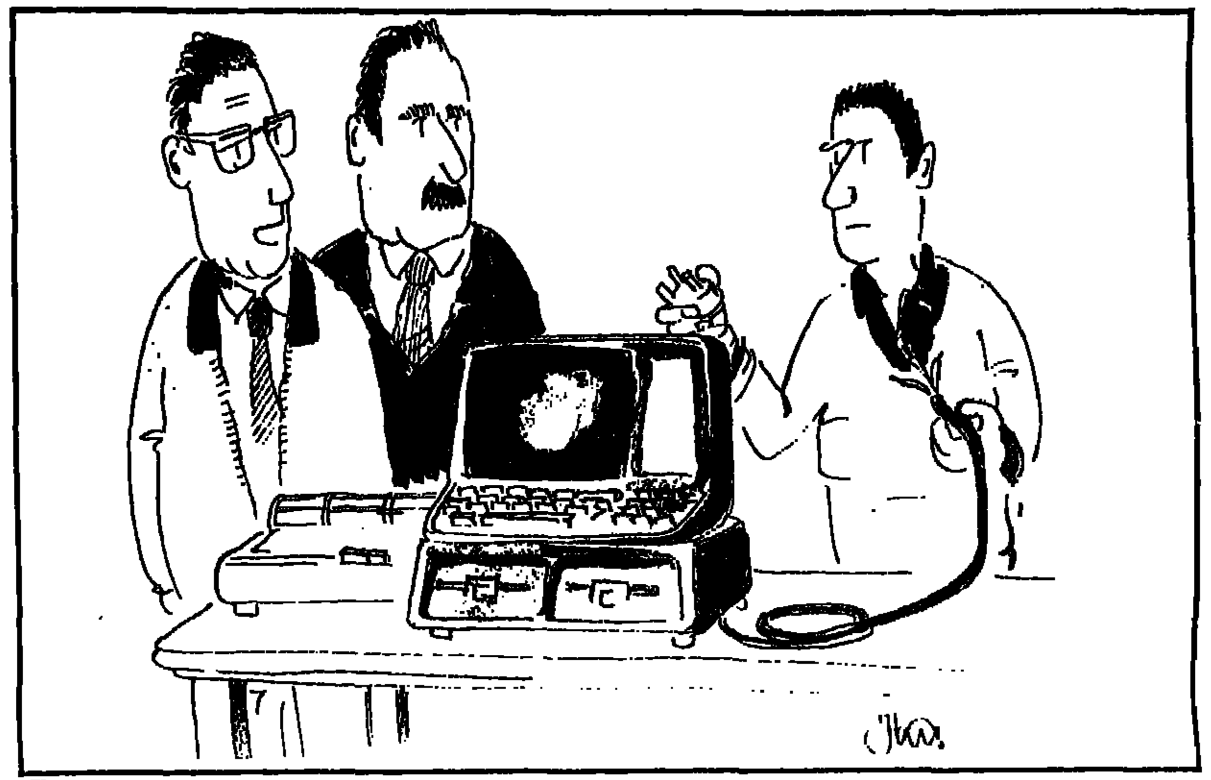
Doug Brown, executive manager for group development, says the company generally takes on six or seven trainees a year, both from the outside and internally by a standing invitation for anyone in the company to apply for the job.

"If they earn more than they would as trainee programmers, like *shift leaders* for example, then we offer them salary protection for a period of up to three years," Brown said.

Kalamazoo is half owned by its employees. The company's installation comprises three Burroughs mainframes, a couple of Datapoint minicomputers and data entry equipment from various manufacturers.

At the British Gas West Midlands Regional site in Solihull, the number of staff employed is just under 200 on three ICL 2900 series mainframes running under VMB and DME, as well as a Digital Equipment and two Modcomp minicomputers.

"We are still increasing staff according to justified work, not policy. We took on seven new trainees in August and will probably advertise new jobs in specialist situations soon," said Peter Garrett, systems manager at British Gas.



"Two years doing computer studies and he doesn't know how to put the plug on . . ."

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Analyst/ Programmer (CAD)

to develop software for computer aided design and drafting for schemes and quotations for temporary works equipment supplied to the construction industry.

Applicants, male or female, should have a record of successful development of technical software and experience with graphics applications. Familiarity with HP 9845B and peripherals will be advantageous.

The position is based at our head office in Birmingham and offers attractive conditions including company pension scheme, free life assurance, BUPA and Permanent Health Insurance.

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SYSTEMS SUPPORT PROGRAMMER
£ Neg. + Car

CAMTEC Electronics require two key staff to help continue their rapid expansion in the Data Communications market. Our JNT-PAD is already setting the standards for X25 Packet Assembler/Disassembler products and developments are underway on Cambridge Ring and Ethernet.

Applicants for both positions should have a good background in mini/micro programming using assembler and a high level language. Specific experience with any of the following would be advantageous: Real Time Programming; Data communications; Z80 or 68000; an MDS; Pascal or C. The support position will involve customer liaison and training and applicants should be able to communicate with customer staff at all levels.

Assistance with relocation expenses would be given where appropriate. Contact: Vic Toy or Dave Drury on (0533) 762166/762333, or write enclosing a detailed CV to:

CAMTEC Electronics Ltd.
Suckland Road, Leicester LE5 0NT

(1110)

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Coventry Lanchester Polytechnic

Department of Computer Science

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Salary scale £6,855 – £11,022

Applicants should be experienced in the field of technical software development, particularly in graphics or computer aided design or in computer hardware, especially the application of microprocessors. Applicants with other specialisms will also be considered.

The person appointed will contribute to specialist teaching on CNAA degree and HND courses and will have the opportunity to pursue research and consultancy in the above areas.

Details from Assistant Personnel Officer, Coventry (Lanchester) Polytechnic, Priory Street, Coventry CV1 5FB. (Enclose a large self-addressed envelope). Closing date: 20th October 1982.

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Applications are invited from well qualified graduates with some experience in batch manufacturing and/or software *for microcomputers* for the three posts as RESEARCH ASSISTANT.

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PROGRAMMERS **Negotiable from £8,000 p.a.**
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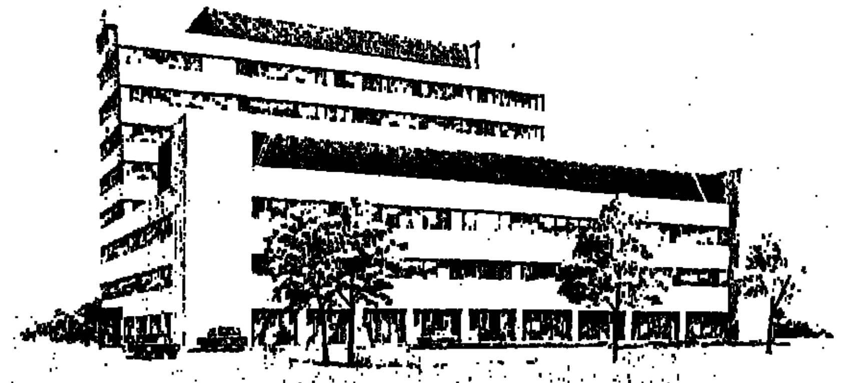

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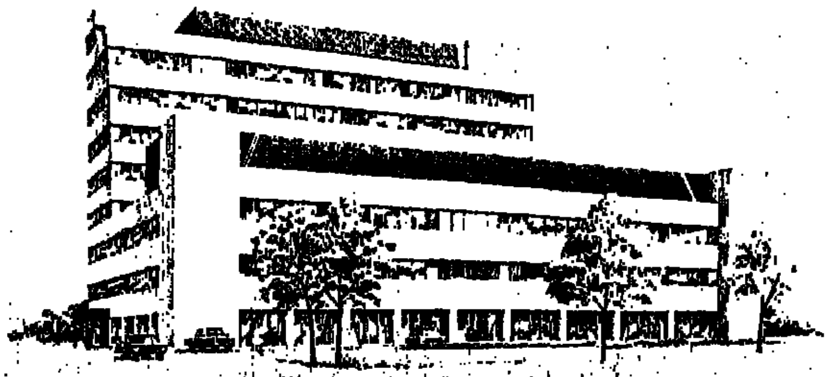

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IBM COBOL ASSEMBLER OS JCL DOS IMS or other Database.

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Company benefits include ★ Free Medical Insurance ★ Paid Overtime ★ Generous Relocation Expenses ★ Interest Free Loan.

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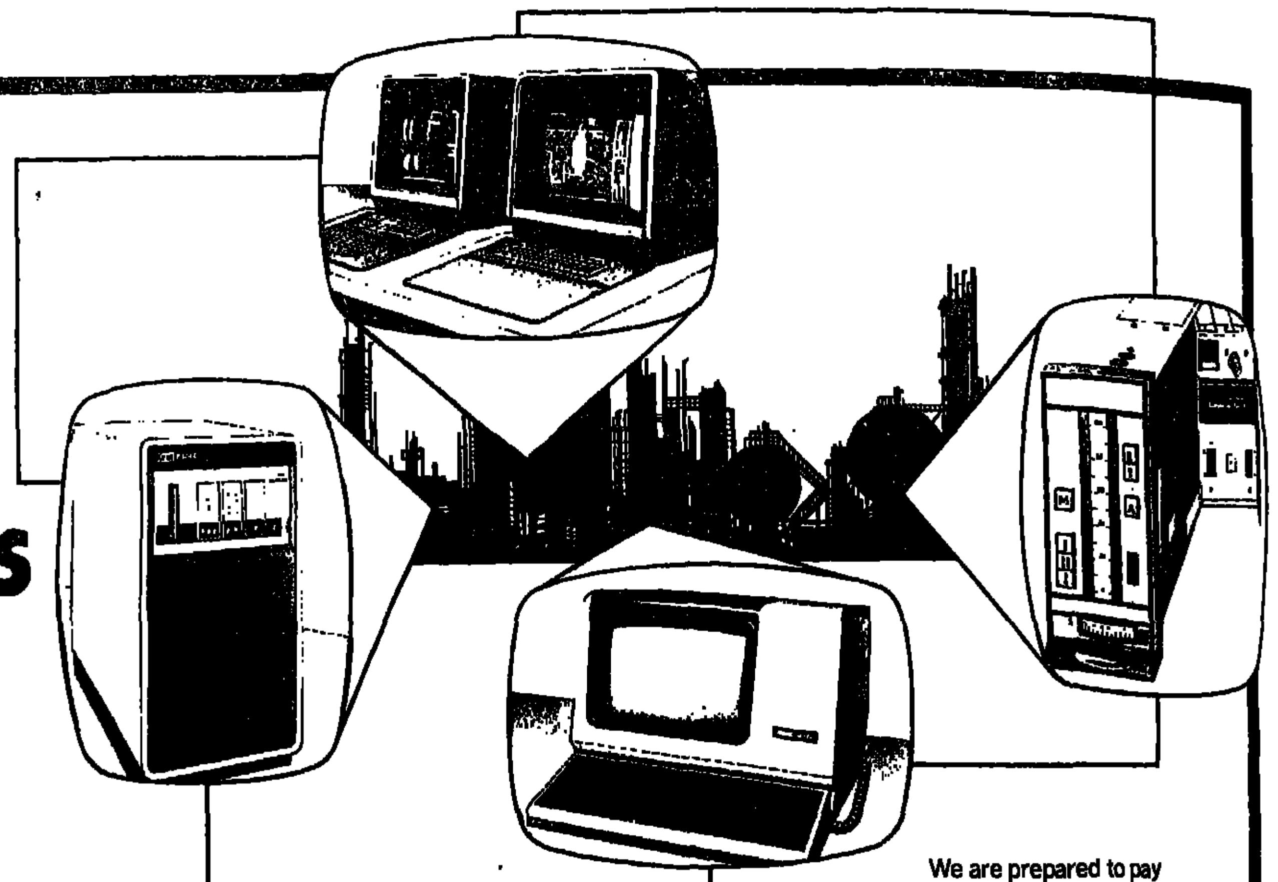
DESIGNERS...

help us develop distributed systems for process control



Earlier this year, we introduced the first phase of our highly advanced P4000 Distributed System which applies state-of-the-art technology to the control of industrial processes.

P4000 Distributed System is the latest in a long line of high-performance instrumentation and automatic control systems which Kent has been supplying to the world's process industries for over 50 years.

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- * operating systems, compilers or development aids
- * assembler, CORAL, PASCAL, RTL2-style languages.

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Please ring our Personnel Department on 0462 54801 for more information or send brief career details to John Bojczuk, Automation Systems, Kent Process Control Limited, 6 Hunting Gate, Hitchin, Herts SG4 0TG.

Kent Process Control Limited
Automation Systems
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Our immediate domestic and international consulting needs are detailed below. If you are of a professional disposition, skilled and dedicated, and wish to join our growing permanent or contract staff, please contact us in respect of these and future opportunities.

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UK

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COBOL, IDMS, OS	Programmer	Home Counties
IBM Series 1, RPS	Programmers, Analyst/Programmer	London
CPC	Programmers	London
APL	Programmer	London
COBOL, CICS, DL/1	Programmers	Home Counties
COBOL, ADABAS	Programmer/Analyst	London
COBOL, DGM6 8000	Programmer/Analyst	Scotland
RPG 2 or 3, S/34 or S/38 DMS/38 or DMAS/34	Programmer/Analysts	Berks
DE/RPG, IBM 5280	Programmer/Analysts	London
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Resources Department
TANGENT COMPUTER SERVICES LTD.
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Romford
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Tel: Romford (0708) 750201
(24-hour answering service)

Tangent

(1091)

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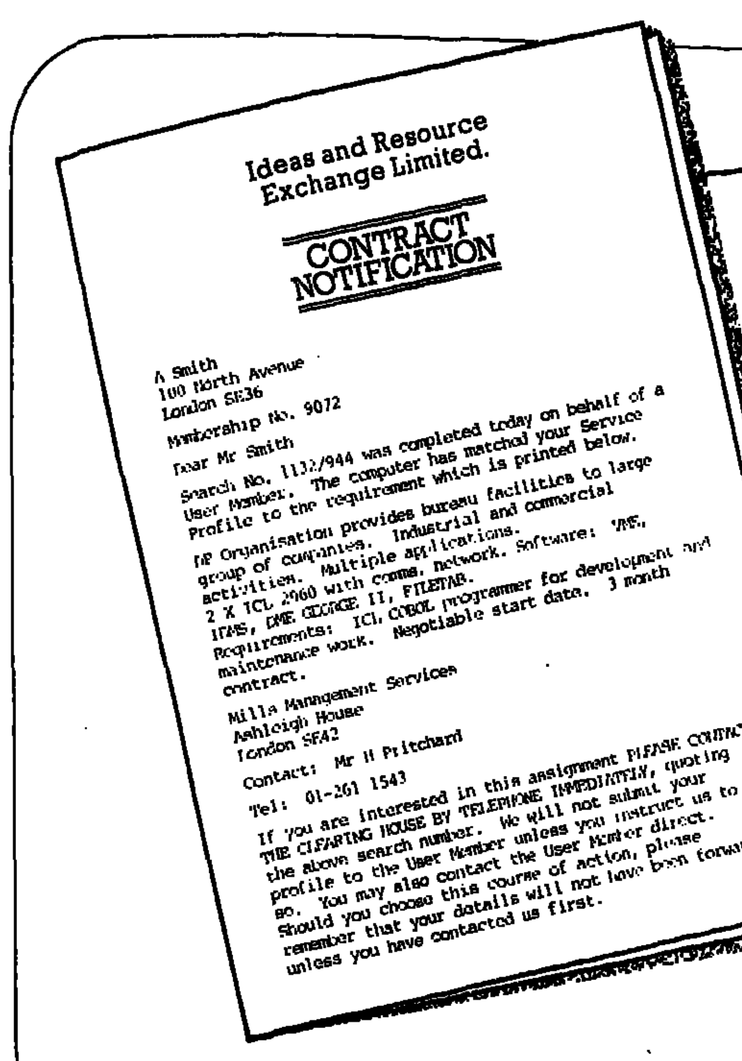
Computer Search Contracts

(1211)



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Our department: UNIVAC Systems Software & Operations Support is looking for a Systems Programmer.

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- validation of UNIVAC supplied software,
- maintenance of UNIVAC systems software for both batch & on-line systems,
- detection and correction of errors in UNIVAC systems software,
- assisting the operations department with specification of operating instructions,
- outlining of standards for users of UNIVAC systems software,
- provide technical assistance to applications programmers, when the need arises,
- improve and maintain standards & guidelines for users of systems software.

QUALIFICATIONS:

- good knowledge of CMS, DMS & UNIVAC systems software,
- initiative & independence,
- good co-operation with other people,
- capacity to evaluate a situation and exercise decisiveness,
- able to express yourself in English both in writing & verbally,
- good service manner.

WORKING CONDITIONS:

The system guard arrangement requires normal working time of 08.00-16.15 Monday to Friday plus a Saturday shift usually every 5th or 6th week. Implementation of certain applications may require the working of overtime.

Further information can be given at telephone 01-509111 extension 3051 Jens Ravn or on extension 4451 Erik Hansen.

Written application should be sent to SAS Personnel Department, Copenhagen Airport, PO Box 150, 2770 Kastrup, Denmark.

(1198)

SENIOR SYSTEMS ANALYST

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Woolstons and Blunts is the leading public library supply company in the U.K. and overseas libraries.

We are looking for a senior systems analyst to join an expanding team which is developing the next generation of company systems, based upon IBM 4331-2, plus mini and micro hardware.

The successful applicant will have a minimum of two years systems experience and either a programming or O and M background. IBM experience would be useful but not essential. Reporting directly to the systems manager, he or she will be responsible for complete projects from feasibility to implementation.

Please write giving details of career and salary progression to date to:

Mr I. Woolley, Systems Manager, Woolstons and Blunts, Gamble Street, Nottingham, NG7 4FJ.

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(1202)

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As a result of recent expansion, MOCCOMAT U.K. LIMITED require a DP Manager to take charge of their small computer department in North London.

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For more information [illegible]

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[illegible]

UK VIA I.A.

Due to continued expansion, our client, an international minicomputer manufacturer has retained Industrial Artists to find committed professionals to join its Research and Development Unit. These exciting opportunities are for:

Senior Systems Engineers – Ref: MR 1093
Each to manage 4 specific sub-projects, leading a team of Systems Engineers and Associates. Applicants must have successfully completed at least one major project in, preferably, a mini computer environment and be capable of producing concisely detailed specifications each team will need. Technically, applicants should have experience of several levels of software hierarchy, including applications and machine code.

Systems Engineers – Ref: MR 1092
To design and specify original software for a variety of new developments. Applicants should have a minimum of 4 years' design experience preferably, but not essentially, in a 'mini' environment, as well as the ability to schedule manpower and define timescales. Each of these positions could well be a first step towards management.

Associate Systems Engineers – Ref: MR 1091
To work as part of a team developing new systems products. Applicants should have a minimum of 2 years' systems software experience — and, if not, in a 'mini' environment, such training will be given.

Outlined above are our client's most urgent requirements. If you are interested in these, or indeed other challenging positions in the forefront of mini computer Research and Development, with a highly respected manufacturer, please send your career résumé now to:

Edith Watson,
Recruitment Consultant,
Industrial Artists Limited,
21 Bancroft, Hitchin, Hertfordshire SG5 1JP
Tel: (0462) 57141 (Day) or (0234) 46000 (Eve/Weekends)

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Experience has proven that moving away from traditional computing practices, no matter how evolutionary and gradual, creates its own special set of People/Business related problems. That's why we seek to attract an experienced D.P. Professional with a special set of talents who can take control of this sizeable business and introduce successfully, new areas of high technology to enhance and replace traditional d.p. services.

We see our Candidates as being Graduates, probably under the age of 40 who have achieved considerable experience and success in managing Large-Scale bureau services, preferably based on IBM hardware. This foundation of experience must include extensive customer dealings at middle and upper Management levels, as well as the ability to operate to a defined corporate policy and within realistic budgets.

The function we would liken to that of a General Manager where the focus of responsibility would be on maintaining and improving the computer services provided by our seven Data Centres and additionally enhancing customer relations generally. Our key objectives for the future are to introduce new services such as Distributed and Local Computing augmented by the introduction of Automated Office Technology to our Clients by the mid 1980's.

The important characteristics of our Candidates must be the proven management skills to identify and analyse sound business opportunities combined with a sound practical understanding of current computer trends.

For a qualifying discussion on this new opportunity, initial contact should be made with **Alan Carnell** on **021-236 3781** (24 hour answering service). Alternatively, a Curriculum Vitae can be submitted in total confidence to our Birmingham office.

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(1078)

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IBM 8100 DPPX COBOL	Programmers
DEC VAX 11/780 COBOL	Programmers
DEC VAX 11/780 MACRO 32	Programmers
ICL ME29	Programmers
ICL VME/B COBOL TPMS	Programmers
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HP3000 RAPID IMAGE QUERY	Programmers

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USA
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UNIVAC 1100 DMS TPS COBOL — Programmers URGENT

HOLLAND
DEC VAX 11/780 COBOL — Programmers Amsterdam

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ICL CAD CAM GINO GRAPH — Programmers
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FRANCE
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Contact: Alan Williams
Peter Hubble or Alisdair Scott – ANY TIME!

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To plan, develop, and implement a Ministry Health Information Systems, a 900 bed hospital and twenty Health Centres. Responsible for systems analysis, and program design specifications, software and hardware selection, supervision of contractors, and training of staff.

Candidates should have solid Health Information Systems experience in a large hospital, at a senior level, and hold an advanced degree in Computer Science or equivalent. The post is offered on a married status contract for two years, benefits include free, furnished accommodation and 36 days annual leave and air fares.

Candidates should forward a full c.v. including details of qualifications to:

Mr. Ibrahim Hazim, Chief, Recruitment & Placement, P.O. Box 1066, Manama, Bahrain (Arabian Gulf).

*Salary quoted is at current exchange rate.

METROPOLITAN BOROUGH OF WIGAN
Wigan College of Technology
Parsons Walk, Wigan
Required for 1st January, 1983

LI COMPUTING

Candidate should be prepared to lecture on a range of computing topics with contributions to techniques of systems analysis, computer operation and job control languages. Industrial or commercial experience will be an advantage.

Application forms and further particulars available from and returnable to The Principal at the above address. Closing date 22nd October, 1982. Ref: Comp Week 41.

(1190)

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For further information, please contact:

Mr. D. R. Lyon, Sales Manager
Peripheral Hardware Limited
Unit 13
Monkspath Industrial Park
Highlands Road, Shirley
West Midlands, B90 4NY

Tel: 021-745 3033
or evenings and weekends
Tel: 0538 371555

PHL

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(1196)

UNIVERSITY OF STIRLING
Administrative Data Processing Section

PROGRAMMER

Applications are invited for this two-year fixed-term appointment. Candidates should have experience in COBOL programming, preferably in the development of on-line systems and should be qualified to advanced level mathematics standard (or equivalent).

The section serves the data processing needs of the University, e.g. staff and student records, financial and management accounting (based on a DEC VAX 11/780). Salary will be within the Clerical Scale 5 £6677-£7470 (under review).

Further particulars are available from the University Secretary, University of Stirling, Stirling FK9 4LA. Telephone 3171 Ext 2314, to whom applications including the names of two referees should be returned by 25th October, 1982.

(1191)

THAMES POLYTECHNIC
School of Mathematics, Statistics and Computing

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An honours graduate in computer science is required to work on the application of expert systems techniques to distributed database technology. The study could lead to a higher degree.

Salary scale: Researcher A £5514-£6199 inclusive

Further particulars and application form from the Staffing Officer, Thames Polytechnic, Wellington Street, London, SE18 6PF, to be returned by 19 October 1982.

(1166)

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SALES PERSONNEL

SALES BIT

Quality of Management – 25

Salesfolk are disorganised – it's a matter of record

OVER the last two weeks I have been discussing the need for efficient sales documentation and its role in large and small companies alike, despite the typical salesman's intense dislike of it. Let us now be more specific about the kind of paperwork that is essential to any sales organisation, irrespective of its size, product, or marketplace.

Some companies may need reports generated or documents completed by virtue of their own peculiar business – product performance analysis, competitive information reports, returned goods credit documents, and so on. However, any sales organisation (including one-man-bands) is unlikely to achieve real operational efficiency without three basic documents: Client records, call plans, and call reports.

Client records are essential, not only for keeping a consistent record of all the activity that went before, but also to assist planning ahead. Where there is a multitude of client and prospect situations it is easy to forget what happened when, who promised what, and what was actually done.

Any sales manager will tell you that the best salespeople keep the most efficient, as opposed to the most comprehensive, client records.

Perhaps because of a congenial abhorrence of paperwork, most salespeople are badly organised when it comes to the maintenance of detailed records of sales activity within their sphere of responsibility. A cursory view of the salespeople around you will reveal a variety of eccentric methods for retaining information – backs of envelopes, last year's diary, curly-cornered over-written record cards, a waste paper scrabble at the bottom of a drawer, a cardboard box in the car boot, you know the type of thing.

Amazingly, many such people are out on the road selling products intended to increase efficiency and productivity of the client. What a short-sighted attitude! How can they assist the end user to solve his problems, or at least give the impression of the ability to do so, if they are so disorganised themselves? Remember the parable of the mote and the beam?

Client records have more uses than just a reminder and planning system for the salesman. They are essential in circumstances where someone new has to take over. This could involve a relief salesman during periods of sickness or holidays. On the other hand it may be a whole or partial reorganisation of territories, promotion, or even departure to another employer.

Whatever the reason, the salesman who inherits someone else's territory has enormous problems in coming to grips with a territory if he has no record of what went before. That may appear to have no interest for or impact upon the vacating salesman, but even if he has no consideration for others, the fact remains that he could not have operated effectively without them up to that point.

This will be only too apparent, not only to the salesman and sales manager, but also to the clients who inherit the resultant chaos and will subsequently have a significant effect upon the response to any future request for personal references from either internal or external superiors and the attitude of any client on whom a call may be necessary in some other capacity at some point in the future.

There are, of course, many circumstances where the existence of efficient client records means the difference between efficient continuity and total anarchy. But more of that next week.

Alan Williams

COURSES

■ NSC, supplier of the Hyperchannel local area networking facility, has organised five seminars for autumn. Three of these, called Hyperchannel, A Complete Local Area Networking Facility, are management seminars intended for technical managers responsible for DP planning and strategy. Two technical seminars are aimed at senior systems design engineers requiring detailed information on the internal design and implementation of Hyperchannel and Netex software. Management seminars will be held in October and November in Slough and Manchester, at a cost of £35+VAT. Technical seminars are scheduled for October and December, both in Slough and the fee is £75+VAT. Details: (75) 71961.

■ SINCE 1966, the Department of Systems at Lancaster University has been developing systems-based methods of real world problem-solving, building up on more than 200 consulting assignments which ISCOL (International Systems Corp of Lancaster) has undertaken. A course, Systems Approach to Problem Solving, will draw upon this experience to offer managers a practical appreciation of how to apply a systems approach in their own firms. It will be held from November 8-11 at Bowness on Windermere and led by Professor Peter Checkland and Dr Brian Wilson of the Dept of Systems at Lancaster University. Fee is £450+VAT. Details: (0524) 65201.

PUZZLE ANSWER

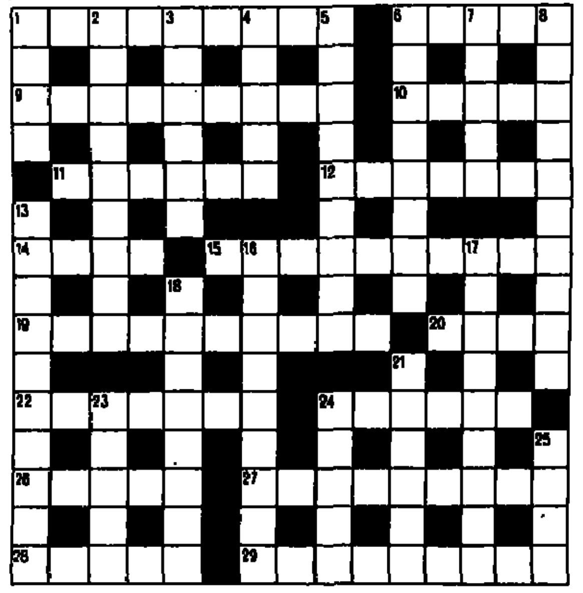
IF one inscribes a square on the first circle, a smaller circle inscribed on the square will be half the area of the original one.

CROSSWORD

Prize Crossword No 33

Compiled by Alec Robins

A prize of £10 will be awarded for the first correct entry opened. The second and third solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey, SM2 5AS, by first post Friday, October 15. Please use a ballpoint to complete the crossword, and include a telephone number at which you can be reached during the daytime.



Name... (Miss, Mrs, Ms, Mr)

Address...

....

Telephone..

I accept the rules and conditions of the Computer Weekly Crossword Competition.

Signed .... Date ....

ACROSS

1. Kind of polka — can end riotously beside the drinks counter (4,5)
6. Good man has dried fruit sent back for presents (5)
9. Figure ruined, we hear, by fish (9)
10. A tree Cromwell clipped (5)
11, 12. Disconcerted by a payment, left 'er to sound opinion (3,3,1,6)
14. One who entertains a great multitude (4)
15. Season well with aromatic herb, d'you hear? (10)
19. No longer worried, getting a beating, having pinched vehicle (4,6)
20. Eager to refrain from ditching love (4)
22, 24. Ragged men granted aid that's much sought after (2,5,6)
26. Vex playfully when lying in a sand-hill (5)
27. Stabilises, and creates business (5,4)
28. Right day of the month for excursions, perhaps (5)
29. The local inhabitants have the team in tears (9)

DOWN

1. Drill is a wearisome thing (4)
2. Resorts in which engineers will have series of instructions (9)
3, 4. At rest, often embracing near the silent hours (4,2,5)
5. Eve almost choked with pride, being raised in rank (9)
6. There's merchandise around to stimulate decent chaps (4,4)
7. Superfluous ornament makes Father sick (5)
8. The girl, eating fruit, notices soldiers leading attacks (10)
13. Betray one who raises a thief (4-6)
16. One not fully occupied is to go away, having dubious merit (4-5)
17. New contrivance — cooking tin in oven (9)
18. People having plots, with cress growing wild about the border (8)
21. There's an advantage in a doctor being diverted (6)
23, 24. Aged drunks doing turns for sovereign princes (5, 5)
25. One chemist annoying children (4)

RULES AND CONDITIONS

1. Each competitor may submit no more than one entry.

2. The competition is open to all readers of Computer Weekly with the exception of the staff of IPC Business Press Ltd, any printers employed by them or the near relatives of any such staff.

3. The solution of each puzzle will normally be published in the issue three weeks after the puzzle has been published.

4. Winners will receive their prizes during the month following the competition.

5. The decision of the editor on the interpretation of the rules and conditions and on all matters shall be final. No correspondence will be entered into.

IBM JSP COBOL

Analyst/Programmer
CONTRACT/PERMANENT
DATA ADMINISTRATOR

Contact: Dennis Andrews,

AJK,
72c Church Road
Hove BN3 2FP

DAY: (0273) 721829
Eves: (0273) 722985

(1200)

BRITISH STANDARDS INSTITUTION

SYSTEMS ANALYST

Milton Keynes

This is a challenging position involving the investigation into existing systems, with the object of modifying where necessary and implementing new approaches.
Candidates should be educated to degree level or equivalent, with 2 or more years' relevant practical experience of business systems in a computerised environment.
Salary is negotiable.
Company benefits include: 5 weeks' annual holiday, subsidised canteen and contributory pension scheme.

Please write with full c.v. to:

David Bennett
BSI British Standards Institution
101 Pentonville Road, London N1 9ND

(1161)

MEDICAL RESEARCH COUNCIL APPLIED PSYCHOLOGY UNIT
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A vacancy exists for a

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The successful candidate will be involved in the advanced design and construction of electronic and other equipment with a responsibility for its final use by psychologists. Minimum qualification HNC or equivalent is essential. Special expertise in the field of instrumentation is looked for and some experience with computer programming and interfacing would be an advantage.
Salary on the Senior Technician scale (£8497 to £8863 p.a.) dependent on age and experience. Pay award pending.
Please apply in writing giving full details plus names of two referees to Ray Bloomfield at the above address. Closing date for applications: 31st October, 1982.

(1184)

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This is a key appointment, covering a significant part of the UK, selling both to major OEM customers and through a vigorous and expanding Distributor/Dealer network.

The successful candidate should ideally have a minimum of 2 years experience in selling computer peripherals and direct experience with a printer manufacturer would clearly be an advantage.

Remuneration will be by an attractive base salary together with unlimited commission on sales. A company car will be provided.

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Borough of Poole

BOROUGH TREASURER'S DEPARTMENT

COMPUTER MANAGER

Salary Grade PO1 (2-6) £9,261-£10,275 (pay award pending)

The council operates an ICL ME29 linked to a remote ICL-2976. It has been decided to make major new development in systems to operate both locally and on the remote mainframe with most applications being online.

Applications are invited from persons who have had considerable experience in designing, programming and implementing TP systems, and have experience of ME29 or 2903 series machines with TME using COBOL, to lead a team on these developments.

The Council offers assistance towards the cost of removal expenses, lodging allowance, legal and estate agents' fees, and a disturbance and travelling allowance is also paid. In certain cases, at the discretion of the Authority, the above allowances may also be applied to single officers.

Application form and further details obtainable from the Chief Personnel Officer, 8 Commercial Road, Parkstone, Poole, Dorset (Tel: Poole 676161, ext 3464/65) returnable by 18th October 1982.

J. K. D. ANDREWS
Town Clerk & Chief Executive Officer

(1053)

ComputerWeekly

Special Recruitment Feature

OCTOBER 14 ISSUE

Opportunities in the MIDDLE EAST

This feature will report on the increasing and wide ranging job opportunities in the Middle East countries for both permanent and temporary assignment positions. As with all Computer Weekly recruitment features, this report will appear within the "appointments" section of the newspaper and relevant advertisements will be positioned beneath an appropriate strap line.

Computer Weekly continues to increase its coverage of the computer industry. Circulation for the first six months of 1982 averaged *100,263 copies every week. More important than the overall circulation level is the journal's dominance among the key job moving categories. With Computer Weekly, you reach MORE Analysts/Designers, MORE Programmers and MORE Operations staff than our nearest weekly competitor.

If you are recruiting for the Middle East, then don't miss the October 14 issue of Computer Weekly. The editorial environment is perfect, your target audience is captive, and, with Computer Weekly's large circulation, you can be sure your advertisement will be read.

Copy deadline is Monday October 11
To reserve space phone your nearest Computer Weekly Classified Office
London: (01) 661 0121
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*ABC Jan-Jun 1982

ComputerWeekly

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Recruitment Brief: Ref. 464

Needed : **A YOUNG PROGRAMMER to train in MARKETING and SALES**

Salary : *about* **£8000** *to* **£9000**, *depending on experience.*

Client Spec. : *rapidly expanding and very successful computer services company, with multi-machine bureau, software consulting and microcomputer interests; highly regarded in financial circles.* Location — City of London.

Job Spec. : *responsible for support of sales effort and liaison with customers, including client education and guidance, systems troubleshooting and problem solving, user documentation; undertake marketing of services and products (promotional material, demo's etc.), some selling under supervision.*

Person Spec. : *Young (21-26) male or female; self-motivated, ambitious; well-educated (pref. degree); about 18 months experience of programming and/or systems design in commercial environment — possibly with software house, computer manufacturer or similar? Hardware, languages immaterial; strong, outgoing personality essential.*

Prospects : *Probable move into front-line sales in short-/medium-term after training, if desired. Alternatively, scope to progress in marketing & support or into other areas of company. Frequent promotion and salary reviews on merit.*

Action: *contact Barry Latchford on the number below or on Newick (082572) 3197 after 7.00 p.m. or write enclosing brief c.v.*

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ComputerWeekly

Copy for classified advertisements should be received by 3.30 p.m. Monday prior to Thursday publication. Advanced space reservations are advisable and should be made on the appropriate number given below:

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He/she must have the ability to lead a team and be able to identify and implement developments. Salary will be competitive, fringe benefits and working conditions are those you would expect of a major international organisation.

Please apply in writing to Mr D. J. Lewis, Personnel Officer, GEC Traction Ltd, PO Box 134, Manchester M60 1AH.

(1201)

BOX NUMBERS

Box number replies should be addressed to:

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The Quadrant
Sutton, Surrey SM2 5AS

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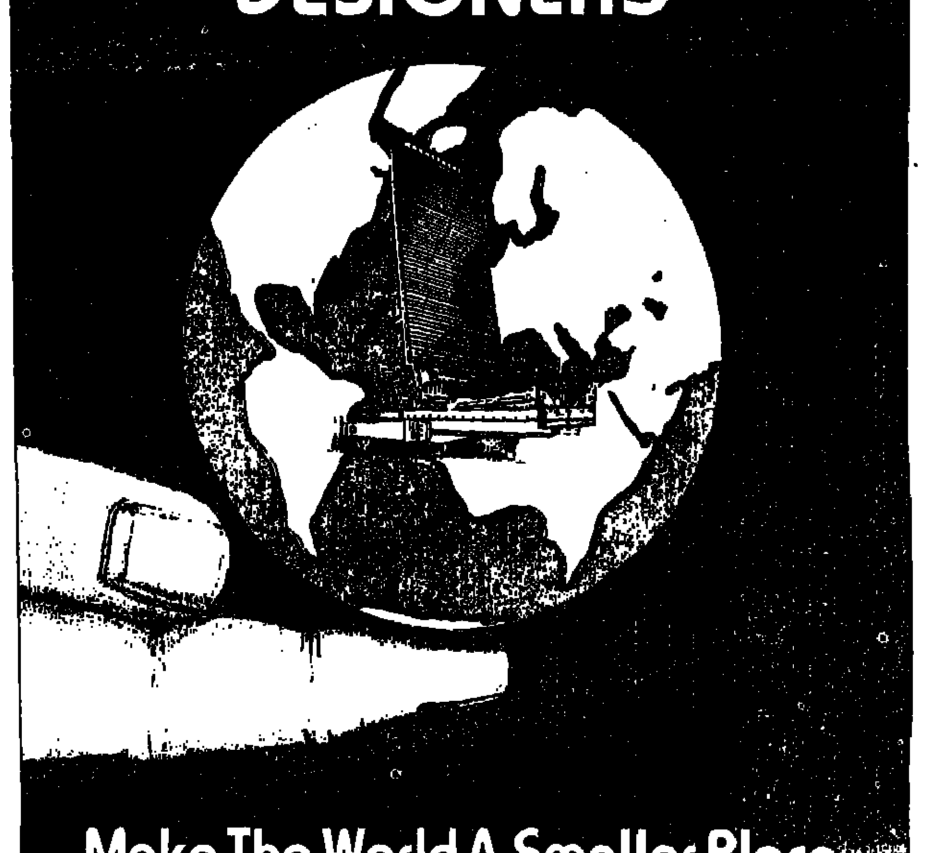

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